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NS HUNTERS POINT, CA  
SSIC 5000-33a

**MEETING MINUTES FOR TECHNICAL REVIEW COMMITTEE (TRC) MEETING  
HELD ON 19 MARCH 1991 - INCLUDES AGENDA; ATTENDANCE SHEET; AND  
VARIOUS HANDOUTS**

03/19/1991  
HARDING LAWSON ASSOCIATES

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**March 19, 1991**  
**Technical Review Committee Meeting Summary**  
**Hunters Point Annex**  
**San Francisco, California**  
**Page 1**

**Attendees:** See attached

**Agenda:** See attached

**General Announcements:**

Mark Malinowski, remedial project manager for the California Department of Health Services, will be transferring to Sacramento. Chein Kao will be temporarily taking over his responsibilities until Bill Brown is transferred from the Enforcement Division.

Mary Lucas, project manager for Harding Lawson Associates, will be on maternity leave beginning in August. A replacement project manager is being identified.

**I. Approval of minutes of last meeting:**

No comments were received regarding the minutes of the last TRC meeting.

**II. City Lease:**

The opening session for the lease negotiations between the Navy and the City is scheduled for March 20, 1991.

**III. Federal Facility Agreement/Technical Assistance Grant:**

The Navy and the agencies are finalizing the Federal Facility Agreement in response to comments received.

**IV. ATSDR Site Visit:**

The ATSDR will be conducting a site visit on March 27, 28, and 29, 1991 as part of a health assessment required for all Superfund sites. The purpose of the visit is to prioritize Department of Defense sites for health assessments. A list of the names of the inspectors was distributed.

The DHS requested a meeting with the ATSDR ahead of time to discuss the purpose of the inspection. The Navy stated that the ATSDR is contacting the agencies they would like involved prior to the inspection. Gwen Eng is the ATSDR representative coordinating the inspection.

**V. Removal Action Status Report:**

**Pickling and Plate Yard.** The Navy sent out the addendum to the air model and risk assessment for the removal action at the Pickling and Plate Yard on January 30, 1991. Comments have been received from the Bay Area Air Quality Management District

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(BAAQMD) and the US Environmental Protection Agency (EPA). In response to the comments, the Navy will recalculate the estimated risks using the assumptions requested by the agencies, and the effect on the exclusion zone will be evaluated. The revisions to the addendum will be included in a letter to be submitted by April 17, 1991.

The draft final removal action work plan for the Pickling and Plate Yard will be submitted to the agencies by the middle of May, 1991. A more detailed description of the air monitoring to be performed and the engineering controls to be utilized during the removal action will be included.

**Asbestos.** The asbestos removal action is complete; a report summarizing pre and post removal action activities was submitted to the agencies on December 6, 1990. This agenda item will be deleted from future Technical Review Committee (TRC) meetings.

**Tank S-505.** EPA comments regarding the plans and specifications for the removal action for Tank S505 are being addressed. The Navy expects a bid opening for the removal action by June 15 with award by July 15, 1991. Demolition activities are expected to be completed by early 1992.

The EPA distributed information regarding another project where PCB-contaminated sludge had been successfully stabilized using quick lime. The Navy stated that it is too late to consider this treatment option for the contents of Tank S505, but it would be considered for the oil reclamation ponds (Site IR-3).

**Tank Farm.** Submittal of the detailed design documents for the removal action at the Tank Farm to the agencies is expected by April 12, 1991. Receipt of agency comments is requested within one month of the submittal. Based on this schedule, bid opening is expected by early August with award by early September, 1991. Construction/demolition completion is expected six months after award.

**Sandblast Grit.** The Navy will be distributing a 3 volume report summarizing the sandblast grit activities to date within approximately one week.

At this time, the Navy is conducting additional bench scale testing for tributyltin. Submittal of a work plan for the incorporation of the sandblast grit into asphalt is expected in April, 1991.

**VI. Preliminary Assessment Other Areas:**

The Navy expects to submit the response to agency comments received regarding the draft Preliminary Assessment report for the Other Areas by March 21, 1991.

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**VII. SI/RI Activities:**

**Environmental Sampling and Analysis Plan.** The draft final Environmental Sampling and Analysis Plan (ESAP) was hand delivered to the agencies on March 14, 1991. The Quality Assurance Project Plan (QAPP) and Health and Safety Plan (HSP) which support the ESAP will be hand delivered within two days. The agency review period will be 30 days following the submittal of the QAPP and HSP. The agencies may ask for an extension, if deemed necessary.

The next newsletter to be produced by the Navy is devoted to the ESAP; it will be published within two days. No agency comments were received regarding the newsletter.

**PHEE Plan Addendum.** The addendum to the PHEE plan was submitted to the regulatory agencies on February 8, 1991; comments are due by March 23, 1991. At this time comments have only been received from the EPA.

**Status of Sites PA-16 and PA-18.** The field work for the site inspections (SIs) at Sites PA-16 and PA-18 is complete. The Navy is awaiting analytical results.

**Status of Operable Unit II.** The primary phase of the remedial investigation (RI) field work has been completed with two rounds of groundwater sampling at Operable Unit (OU) II. Submittal of the Summary of Findings Memorandum (SFM) for this OU is expected by April 22, 1991 as required by the FFA. The third round of groundwater sampling will be scheduled soon.

**Status of Operable Units I, III, and IV.** The Navy stated that the contact for EPA regarding their split sampling program for Hunters Point Annex is PRC. Any questions regarding the RI sampling program should be directed to them.

**IR-3 Product Pumpouts.** The Navy has completed interim pump out activities at the oil reclamation ponds (Site IR-3). The program consisted of pumping out the wells with product weekly over a period of three weeks. There was initially up to 7 feet of product identified in the wells, but this thickness may be up to 7 times larger than what is expected in the formation. The product occurs primarily in a shallow clay zone.

During the pump out program, product was removed with a peristaltic pump and a total of 19 gallons was recovered. Most of the product was obtained from well O-3, probably because the formation contains more sand and gravel at this location. The product thickness in most of the wells decreased over the pumping period but the thickness in well O-3 remained relatively stable.

The conclusions obtained from the pump out program are that product recovery by pumping appears effective at some well locations. However, more

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information is needed to evaluate the feasibility of installation of a dedicated automatic oil recovery system. The Navy plans to continue the pumpout program for an additional two months to evaluate whether a permanent recovery system is appropriate.

A letter report documenting the product pumpouts will be sent to the Navy within two weeks and to the agencies as soon as possible.

The DHS is concerned that removal of the product by pumping may not recover more than 25 percent of the product in the formation. Additional feasibility study (FS) activities will be required to address the product remaining in the soil. The Navy plans to conduct the FS in accordance with the schedule contained in the FFA. (No discharge of product to the Bay has been observed).

The Navy, DHS, and the Regional Water Quality Control Board (RWQCB) may find that an interim remediation is necessary. It was agreed that the soil and groundwater data for this site will be reviewed to evaluate whether this is necessary. The schedule for receipt of the data is indefinite.

The EPA stated that they are not sure whether they obtained useful information from the geophysical program they conducted at the oil ponds because they had difficulties in completing borings for logging purposes.

The next step of field work at the oil reclamation ponds will be to do trenching to evaluate the extent of product in the soil. The trenches will be dug from outside of the area of suspected oil towards the ponds. The trenching will stop when product is observed in the soil. Soil removed from outside of the areas containing oil will be placed back into the trenches.

**RI Implementation Schedules.** The Navy submitted implementation schedules for OUs III, IV, and V. The schedule for OU I is uncertain due to drilling problems and lab analysis problems and was not handed out. The schedule for OU V does not include any of the additional PA sites.

**Operable Unit V.** The Navy is negotiating a contract award for the implementation of OU V at this time. The start up of field work is expected in June.

**VIII. Operable Unit II Summary of Findings:**

The SFM for the OU II sites will be submitted to the agencies by April 22, 1991; the purpose of the presentation at this meeting was to provide a preview of the results and summary of recommendations to the agencies. The OU II sites include IR-6, IR-8, IR-9, and IR-10. Sites IR-6 and IR-10 will be combined in the SFM because of their proximity and the similarity of chemicals identified at each site. A contingency phase

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RI is recommended for each site to fill in data gaps identified during the preliminary phase RI.

**IX. PHEE Approach:**

The purpose of the presentation at this meeting was to discuss agency comments received regarding the preliminary identification of exposure pathways which was distributed at the last TRC meeting. Upon concurrence on the pathways which will be considered the table of potential exposure pathways will be revised. The Navy would like to request a meeting with the agencies to discuss the intake assumptions that will be used to quantify each exposure pathway. The meeting would take place after the SFM for OU II is distributed but no definite time was set.

The Navy requested guidance from the agencies regarding whether institutional controls would be considered in the evaluation of pathways of exposure, specifically related to current and future land and water uses. The EPA stated that the quality of the groundwater beneath HPA will have more of a bearing on whether the groundwater is considered potable. They also stated that they generally require consideration of the reasonable maximum exposure, including the on-site future resident. Institutional controls would only be considered if the feasibility study (FS) and risk assessment determine that elimination of a risk is not feasible. The RWQCB will also need to be consulted on this.

Other items discussed regarding the exposure pathways were as follows:

- o There are no current on-site residents.
- o Ingestion of shell fish will be considered as part of the PHEE. If data are not available from the ESAP, modeling may be used to evaluate this pathway. NOAA stated that this is an important pathway because some low income residents use the bay as a food source.
- o There is a proposed park immediately south of HPA; recreational use of the bay is planned.
- o The on-site recreational user will be considered as a potential receptor; potential exposure to indoor air will be considered as part of this pathway.
- o The potential receptor populations will be characterized according to the general categories already identified. Specific receptors such as the mushroom buyer would be considered either an occasional user or an occupational exposure; repeat users may be considered an occasional user. The classification of potential receptors will be finalized once the intake assumptions are identified for each pathway.

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As stated in the addendum to the 1988 PHEE work plan, current risk assessment guidance rather than the guidance documents referenced in the work plan will be followed in the preparation of the PHEE.

**X. Air Sampling:**

Implementation of the air sampling has been postponed to April because of the cold and rainy conditions during March.

**XI. Underground Tanks:**

The removal action plan (RAP) for 23 underground storage tanks (USTs) at HPA has been approved by the regulatory agencies. There was a site walk with the contractor on March 11, and the Navy expects to receive the bid for the removal action by April with award of the contract by May. There will be at least a three week mobilization period for the contractor and implementation of the removal is expected to require four to six months.

The Navy distributed the draft RAP for an additional 22 tanks at this TRC meeting.

**XII. Storm Water Sampling:**

Storm water sampling was completed on December 14 and 15, 1991. Receipt of the analytical data on disk is expected by today. The Navy expects to submit the draft sampling report to the agencies by the middle of June.

**XIII. Formerly Used Defense Sites:**

The Army Corps of Engineers (COE) is preparing their report on the formerly used defense sites at this time.

**XIV. Next Meeting:**

The next TRC meeting was scheduled for 0930 hours on May 22, 1991.

ATTENDANCE SIGN UP  
 HUNTERS POINT ANNEX  
 TECHNICAL REVIEW COMMITTEE MEETING  
19 March, 1991

<u>Name</u>	<u>Representing</u>	<u>Phone</u>
<u>Mary Lueas</u>	<u>HLA</u>	<u>899-7350</u>
<u>Jean Mandalan</u>	<u>HLA</u>	<u>899-7324</u>
<u>Ashok Verma</u>	<u>HLA</u>	<u>899-7386</u>
<u>Grant Ohland</u>	<u>HLA</u>	<u>899-7387</u>
<u>Beth Price</u>	<u>HLA</u>	<u>899-7365</u>
<u>Dave Wells</u>	<u>SF DPH</u>	<u>554-2796</u>
<u>Mark Malinowski</u>	<u>DHS - Reg. 2</u>	<u>540-3816</u>
<u>Louise T. Lew</u>	<u>WESTDIV</u>	<u>244-2551</u>
<u>Cathie Gardinier</u>	<u>BCHTR FOR EPA</u>	<u>768-2766</u>
<u>Chuck Flippin</u>	<u>EPA</u>	<u>744-2388</u>
<u>Gary Welshans</u>	<u>PRC</u>	<u>543-4080</u>
<u>Emir Utush</u>	<u>PRC</u>	<u>543-4880</u>
<u>CHIP DEMAREST</u>	<u>NOAA</u>	<u>744-3126</u>
<u>Jim Polisni</u>	<u>DHS / TECH. SERV.</u>	<u>(910) 323-4709</u>
<u>Chein Kao</u>	<u>DHS / Reg. 2</u>	<u>415-540-<del>5400</del><sup>3822</sup></u>
<u>Bill Brown</u>	<u>DHS / Reg. 2</u>	<u>415-540-3889</u>

**ATTENDANCE SIGN UP  
HUNTERS POINT ANNEX  
TECHNICAL REVIEW COMMITTEE MEETING  
19 March 1991, 1991**

<u>Name</u>	<u>Representing</u>	<u>Phone</u>
<u>Richard Powell</u>	<u>U.C. 501U</u>	<u>(415) 244-2555</u>
<u>Julie Carrer</u>	<u>WESTDIV</u>	<u>(415) 244-2555</u>
<u>Jim Carlisle</u>	<u>Cal DHS</u>	<u>(916) 324-7318</u>
<u>Michael Wade</u>	<u>DHS HQ QTR (SACTS)</u>	<u>(916) 324-9820</u>
<u>Ken Bowen</u>	<u>PRC</u>	<u>(415) 543-4880</u>
<u>Linda Weil</u>	<u>PRC</u>	<u>415/543-4880</u>
<u>Randy Friedman</u>	<u>COMMUNISAFE SF</u>	<u>(415) 395-3916</u>

## **AGENDA**

### **Technical Review Committee Meeting\***

**Hunters Point Annex**

**March 19, 1991**

**Treasure Island, California**

- I. Approval of minutes of last meeting
- II. City Lease
- III. Federal Facility Agreement/Technical Assistance Grant
- IV. ATSDR Site Visit
- V. Removal Action Status Report
  - 1. Pickling and Plate Yard
  - 2. Asbestos
  - 3. Tank S-505
  - 4. Tank Farm
  - 5. Sandblast Grit Fixation
- VI. Preliminary Assessment Other Areas
- VII. SI/RI Activities
  - 1. Environmental Sampling and Analysis Plan
  - 2. PHEE Plan Addenda
  - 3. Status of Sites PA-16 and PA-18
  - 4. Status of Operable Unit II
  - 5. Status of Operable Units I, III, and IV
    - 5.a. IR-3 Product Pumpouts
    - 5.b. RI Implementation Schedule
  - 6. Status of Operable Unit V
- VIII. Operable Unit II Summary of Findings
- IX. PHEE Approach
- X. Air Sampling
- XI. Underground Tanks
- XII. Storm Water Sampling
- XIII. Formerly Used Defense Sites
- XIV. Next Meeting
- XV. Summary of Notes

\*Meeting will be held in Building 1, Naval Station Treasure Island Conference Room, which is at the South end of Building 1.

March 13, 1991

Ray Chaing/Richard Powell  
U.S. Navy  
Western Division, Environmental  
(415) 395-5452

The following ATSDR personnel will be performing the scoping site visit at Treasure Island Naval Station, Hunters Point Annex on March 27, 28 and 29.

Paul Charp, [REDACTED]

Leslie Campbell, [REDACTED]

Carole Diamond, [REDACTED]

Gwen Eng, [REDACTED]

Bill Nelson, [REDACTED]

If you have any further questions, please call me at (404) 639-0677 today. I will be in the San Francisco area for the week of March 25th and can be reached through our regional representative's office (415) 744-2194 or 744-2193.

Leslie Campbell

ATSDR



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF RESEARCH AND DEVELOPMENT  
RISK REDUCTION ENGINEERING LABORATORY  
CINCINNATI, OHIO 45268

**FACT SHEET**

**Research to Assess the Disappearance  
of PCB Resulting from Treatment of Contaminated  
Materials with Quicklime**

March 15, 1991

The U.S. Environmental Protection Agency (EPA) has observed declining concentrations of PCB over time in contaminated sites stabilized through the addition of lime and other alkaline materials. In an effort to explain this phenomenon, EPA's Risk Reduction Engineering Laboratory (RREL) in Cincinnati initiated a project with RMC Environmental of West Plains, Missouri to conduct controlled experiments on PCB-contaminated soils. The research report from this study has been reviewed by both EPA researchers and non-EPA scientists.

The preliminary results have shown disappearance of PCB through the addition of quicklime under the conditions of the experiments conducted by RMC. The reviewers have suggested a number of possible interpretations and explanations of the results. The reviewers recommended that additional studies should be conducted to confirm RMC's results and to collect additional information to determine whether PCB destruction or some other phenomena is occurring. RREL is conducting these studies inhouse. Private laboratories will provide analytical support and confirmation of results. The studies are expected to be completed in approximately one month. The results will be submitted for approximately two weeks of additional peer review. If the results confirm PCB destruction with quicklime treatment, additional studies will be needed to determine in-field application methods, economics, reaction optimization, appropriate wastes to be treated, and to evaluate potential reaction by-products.

For additional information call:

John Convery, Deputy Director  
Risk Reduction Engineering Laboratory  
Office of Research and Development  
U.S. Environmental Protection Agency  
26 W. Martin Luther King Drive  
Cincinnati, Ohio 45268  
(513) 569-7896

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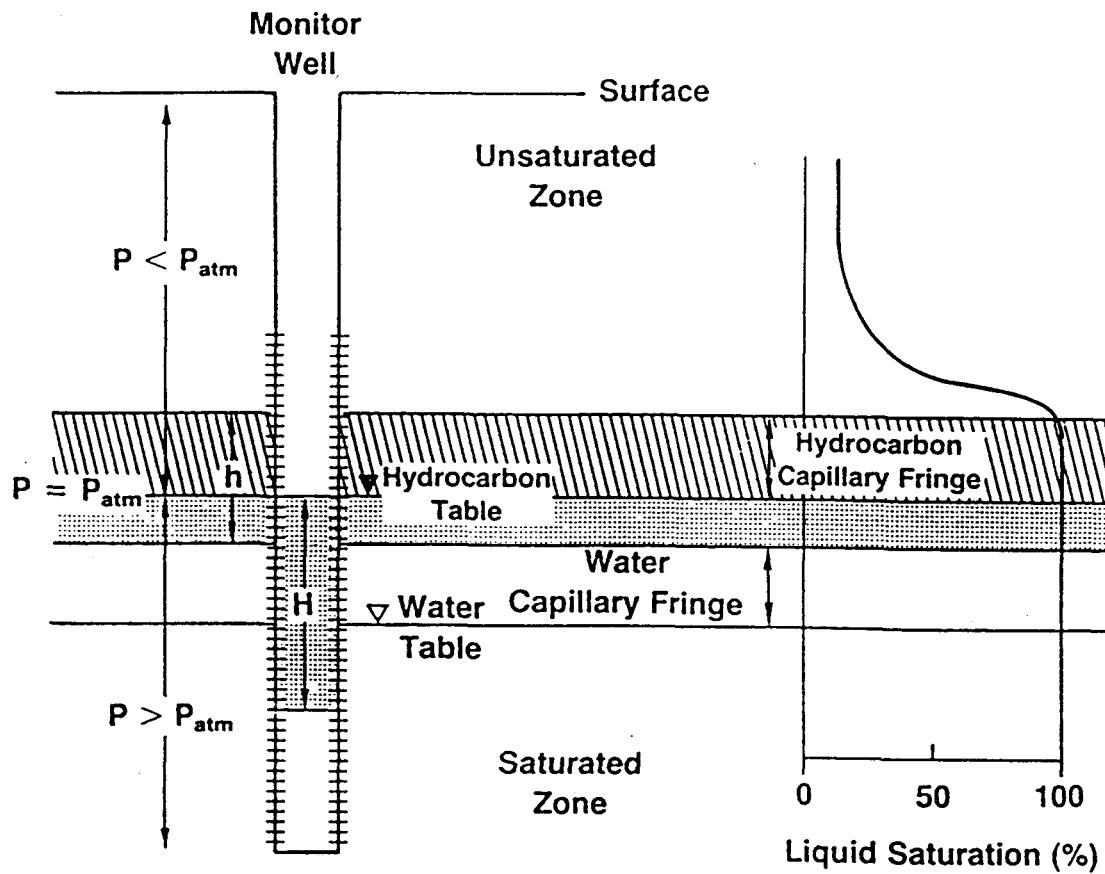
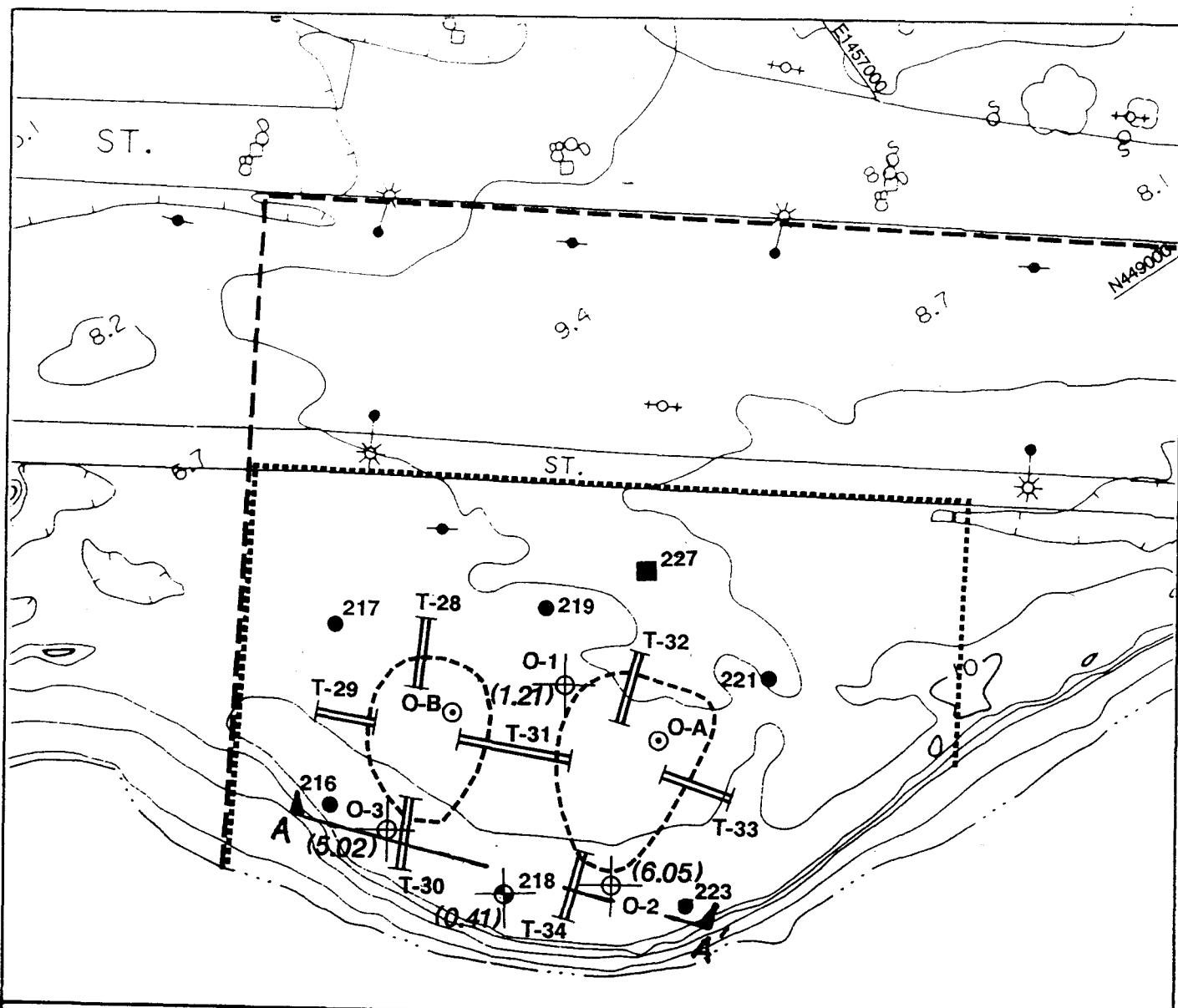


Figure 1

Physical Characteristics of Hydrocarbon on Groundwater.

**EXPLANATION****PROPOSED EXPLORATION  
(this sampling plan)**

- T-31** Exploratory trench (in some areas may be an alignment of 10-15' long pits)
- 225** Shallow monitoring well (screened in uppermost water-bearing unit)
- 228** Deep monitoring well (screened in deeper water-bearing unit)
- 222** Test boring
- 227** Pilot boring

**PREVIOUS EXPLORATION  
(EMCON, 1987)**

- O-1** Previous monitoring well
- O-A** Previous boring

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0 100 200  
SCALE IN FEET



**Harding Lawson Associates**  
Engineers and Geoscientists

**Oil Reclamation Ponds**  
Sampling Plan - Group I Sites  
Hunters Point Annex  
San Francisco, California

PLATE

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**PRODUCT RECOVERY INVESTIGATION**  
**PRODUCT THICKNESS**  
 (in feet)

Well	8-Jan-91	13-Feb-91	20-Feb-91	27-Feb-91
IR03MW218A1 (HLA)	0.18	0.41	NA	0.08
O-1 (EMCON)	1.00	1.21	0.72	0.65
O-2 (EMCON)	6.93	6.05	3.16	0.03
O-3 (EMCON)	4.00	5.02	3.47	4.63

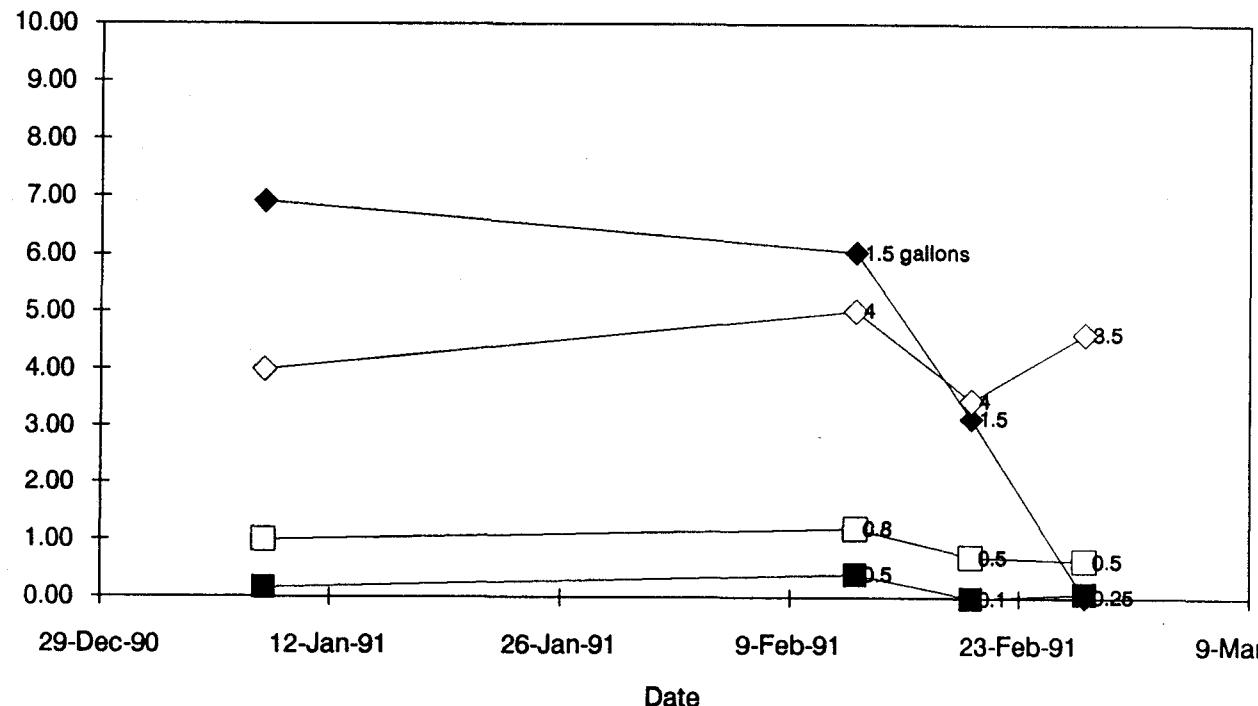
NA = Not Available due to equipment malfunction

**PRODUCT VOLUME RECOVERED**  
 (in gallons)

Well	13-Feb-91	20-Feb-91	27-Feb-91	Total
IR03MW218A1 (HLA)	0.50	0.10	0.25	0.85
O-1 (EMCON)	0.80	0.50	0.50	1.75
O-2 (EMCON)	1.50	1.50	0.25	3.25
O-3 (EMCON)	4.00	4.00	3.50	13.50

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### IR-3, FORMER OIL RECLAMATION PONDS



■ 218A1  
□ O-1  
◆ O-2  
◇ O-3

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Harding Lawson Associates, Inc.  
Generalized Schedule for  
Summary of Findings Memoranda

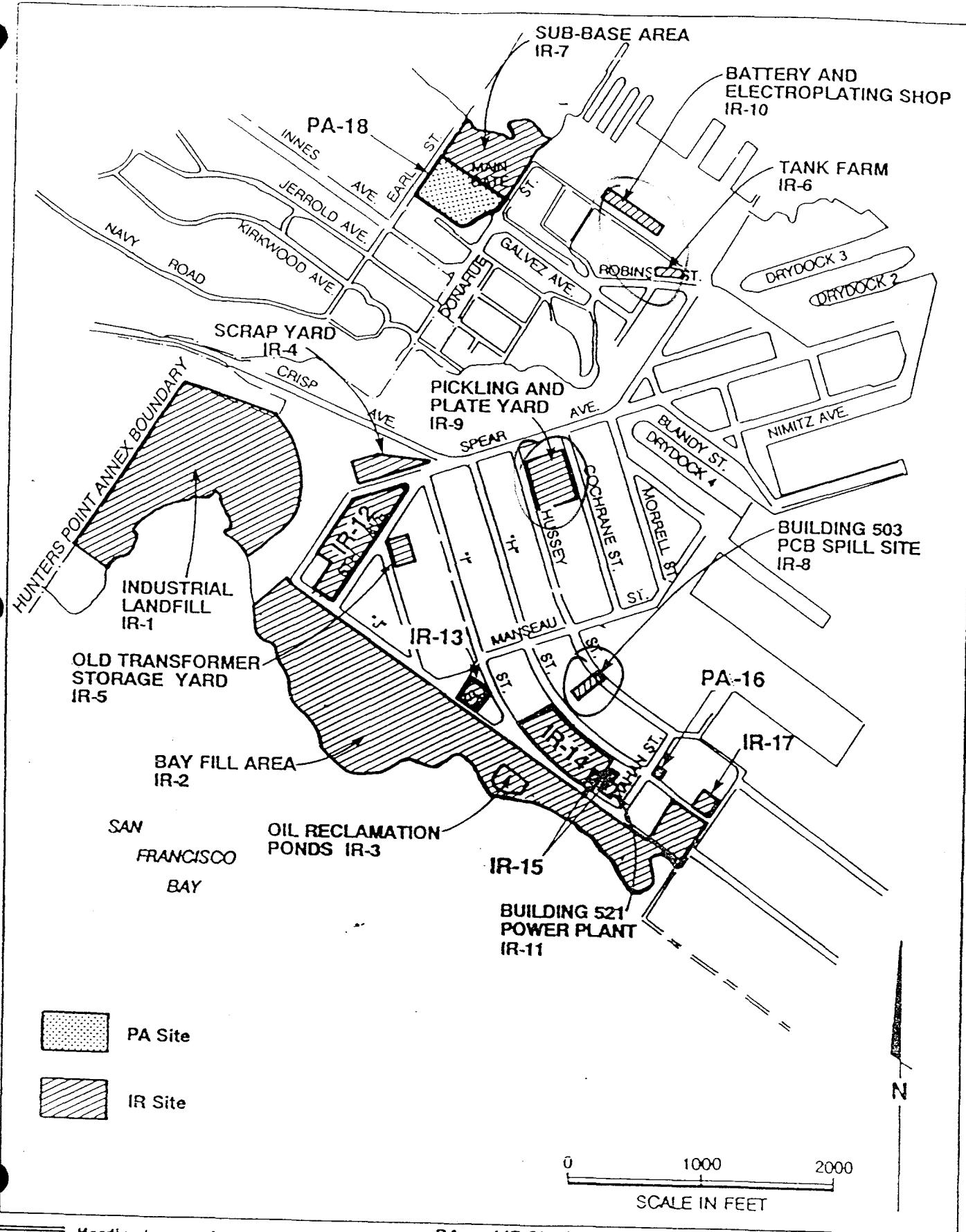
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2																				
3	Operating Unit III																			
4																				
5	Phase 2A Laboratory Analysis																			
6	Data Evaluation/Interpretation																			
7	Data Submittal Report																			
8	Agency Meeting																			
9	Phase 2B Field Work																			
10	Round 2 Groundwater Sampling																			
11	Phase 2B Laboratory Analysis																			
12	Prepare Summary of Findings Memorandum																			
13	Summary of Findings to Agencies																			
14	Round 3 Groundwater Sampling																			
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**Harding Lawson Associates, Inc.**  
**Generalized Schedule for**  
**Summary of Findings Memoranda**

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28																				
29																				
30	Operating Unit 4																			
31																				
32	Phase 2A Laboratory Analysis																			
33	Data Evaluation / Interpretation																			
34	Data Submittal Report																			
35	Agency Meeting																			
36	Phase 2B Field Work																			
37	Round 2 Groundwater Sampling																			
38	Phase 2B Laboratory Analysis																			
39	Phase 2B Data Evaluation																			
40	Round 3 Groundwater Sampling																			
41	Round 3 Laboratory Analysis																			
42	Prepare Summary of Findings Memorandum																			
43	Summary of Findings to Agencies																			
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Harding Lawson Associates, Inc.  
Generalized Schedule for  
Summary of Findings Memoranda

ID	Name	1991												1992						
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56																				
57	Operating Unit V																			
58																				
59	Drilling / Sampling																			
60	Well Development / GW Sampling																			
61	Round 1 Laboratory Analysis																			
62	Round 1 Groundwater Report Prep																			
63	Round 1 Groundwater Agency Meeting																			
64	Round 2 Groundwater Sampling																			
65	Round 2 Laboratory Analysis																			
66	Round 3 Groundwater Sampling																			
67	Round 3 Laboratory Analysis																			
68	Prepare Summary of Findings Memorandum																			
69	Summary of Findings to Agencies																			



Harding Lawson Associates  
Engineers and Geoscientists

PA and IR Site Location Map  
Site Inspection Work Plan  
Hunters Point Annex  
San Francisco, California

**Table \_:\_ Well Construction Details for IR8**

Well Number	Total Depth (feet)	Top of Casing Elevation (feet AMSL[1])	Screened Interval (feet BGS[2])	Sand Pack (feet BGS)	Seal (feet BGS)	Lithologic Unit Screened
IR08MW37A	22.5	4.28	7.0 - 22.5	5.0 - 22.0	3.5 - 5.0	Qaf[3]/Quus[4]
IR08MW38A	24.5	6.86	6.5 - 24.5	5.0 - 24.5	3.5 - 5.0	Qaf/Quuf
IR08MW39A	36.0	5.05	6.0 - 36.0	5.0 - 36.0	3.5 - 5.0	Qaf/Quuf
IR08MW40A	28.5	5.49	8.0 - 28.0	7.0 - 28.0	5.0 - 7.0	Qaf/Quuf
IR08MW41A	26.0	6.43	5.5 - 25.5	4.5 - 26.0	3.0 - 4.5	Qaf/Quuf

[1] AMSL = Above Mean Sea Level (adjusted)

[2] BGS = Below Ground Surface

[3] Qaf = Quaternary Bedrock Fill

[4] Quus = Quaternary Undifferentiated Upper Sand Unit

**Table 2**  
**Historic Water Levels**  
**Building 503 PCB Spill IR-8**  
**Hunters Point Annex**

Well Number and Date Measured	Time Measured (Military)	Top of Casing Elevation (MSL, <sup>1</sup> Feet)	Depth to Water (Feet Below TOC <sup>2</sup> )	Water-Level Elevation (MSL, Feet)
<b>Well:IR08MW37A</b>				
1/17/91	11:28	4.28	4.96	-0.68
1/8/91	09:53	4.28	4.82	-0.54
7/23/90	12:10	4.28	4.98	-0.70
6/26/90	13:50	4.28	4.98	-0.70
6/19/90	11:05	4.28	5.03	-0.75
5/25/90	08:00	4.28	5.18	-0.90
5/17/90	11:00	4.28	5.36	-1.08
<b>Well:IR08MW38A</b>				
1/17/91	11:34	6.86	7.25	-0.39
1/8/91	10:18	6.86	7.15	-0.29
7/23/90	12:15	6.86	7.31	-0.45
<b>Well:IR08MW39A</b>				
1/17/91	11:43	5.05	5.89	-0.84
1/8/91	10:12	5.05	5.74	-0.69
7/23/90	12:05	5.05	5.83	-0.78
<b>Well:IR08MW40A</b>				
1/17/91	11:08	5.49	6.24	-0.75
1/8/91	10:33	5.49	6.09	-0.60
7/23/90	11:58	5.49	6.18	-0.69
6/26/90	13:56	5.49	6.22	-0.73
6/19/90	11:00	5.49	6.28	-0.79
5/25/90	08:00	5.49	6.46	-0.97
5/17/90	11:00	5.49	6.54	-1.05
<b>Well:IR08MW41A</b>				
1/17/91	11:16	6.43	7.42	-0.99
1/8/91	10:40	6.43	7.23	-0.80
7/23/90	11:50	6.43	7.41	-0.98
6/26/90	13:59	6.43	7.45	-1.02
6/19/90	11:02	6.43	7.51	-1.08
5/25/90	08:00	6.43	7.65	-1.22
5/17/90	11:00	6.43	7.71	-1.28

1 MSL = Mean sea level adjusted to the 1929 standard.

2 TOC = Top of casing.

**Table 4**  
**Statistical Summary of Organic Compounds Detected in Soil Samples**  
**IR08 PCB Spill**  
**Hunters Point Annex**  
**Date Range: 1/1/88 - 1/1/91**  
**Report Date: Mar 12, 1991**

Page 1

Test Method (Number of Analyses) / Analyte Name	Units	Number of Detected Values	Mean Value	Max Value	Min Value
CLP-VOC ( 94)					
Methylene chloride	ug/kg	83	7.57	21.00	1.30
Acetone	ug/kg	71	12.85	94.00	1.20
Carbon disulfide	ug/kg	1	6.10	6.10	6.10
Chloroform	ug/kg	1	1.40	1.40	1.40
Methyl ethyl ketone	ug/kg	4	18.50	31.00	14.00
1,1,1-Trichloroethane	ug/kg	13	2.75	7.30	1.40
1,2-Dichloropropane	ug/kg	1	1.60	1.60	1.60
Benzene	ug/kg	4	31.38	110.00	1.70
Tetrachloroethene	ug/kg	1	1.30	1.30	1.30
Toluene	ug/kg	54	16.03	150.00	1.30
Ethyl benzene	ug/kg	1	1.20	1.20	1.20
Xylenes	ug/kg	3	5.97	14.00	1.90
CLP-SOC ( 93)					
1,3-Dichlorobenzene	ug/kg	1	46.00	46.00	46.00
1,4-Dichlorobenzene	ug/kg	1	73.00	73.00	73.00
1,2-Dichlorobenzene	ug/kg	1	110.00	110.00	110.00
1,2,4-Trichlorobenzene	ug/kg	2	1332.50	2600.00	65.00
Naphthalene	ug/kg	11	104.82	320.00	36.00
2-Methylnaphthalene	ug/kg	15	111.00	280.00	34.00
Acenaphthylene	ug/kg	2	165.00	270.00	60.00
Dibenzofuran	ug/kg	16	57.25	120.00	34.00
Diethyl phthalate	ug/kg	2	44.50	51.00	38.00
Fluorene	ug/kg	11	55.00	90.00	37.00
Phenanthrene	ug/kg	36	171.92	690.00	37.00
Anthracene	ug/kg	6	115.67	240.00	41.00
Di-n-butylphthalate	ug/kg	5	162.00	320.00	100.00
Fluoranthene	ug/kg	23	217.17	1100.00	36.00
Pyrene	ug/kg	29	169.10	880.00	35.00
Butylbenzylphthalate	ug/kg	13	982.92	10000.00	56.00
Benzo(a)anthracene	ug/kg	12	179.25	730.00	38.00
Chrysene	ug/kg	27	169.85	810.00	46.00
Bis(2-ethylhexyl)phthalate	ug/kg	72	329.92	5600.00	37.00
Benzo(b)fluoranthene	ug/kg	13	255.38	1600.00	37.00
Benzo(k)fluoranthene	ug/kg	4	111.25	250.00	52.00
Benzo(a)pyrene	ug/kg	9	192.44	990.00	41.00
Indeno(1,2,3-cd)pyrene	ug/kg	4	77.50	180.00	42.00
Benzo(ghi)perylene	ug/kg	5	73.40	160.00	42.00
CLP-PEST/PCB ( 286)					
4,4'-DDE	ug/kg	17	165.52	2400.00	1.30
4,4'-DDD	ug/kg	17	209.01	3000.00	1.00
4,4'-DDT	ug/kg	19	105.43	430.00	3.10
Endrin ketone	ug/kg	1	8.20	8.20	8.20
alpha-Chlordane	ug/kg	2	3.05	4.40	1.70
gamma-Chlordane	ug/kg	1	4.30	4.30	4.30
Aroclor-1260	ug/kg	27	582.52	4900.00	26.00
MOD EPA-8080 ( 53)					
Aroclor-1260	ug/kg	8	592.25	3400.00	64.00
TPH DIESEL ( 96)					
TPH-Diesel	mg/kg	21	61.70	390.00	7.80
TPH GAS ( 91)					
TPH-Gasoline	mg/kg	1	13.00	13.00	13.00
OIL & GREASE ( 93)					
Oil & Grease	mg/kg	65	1247.57	6900.00	50.00

Table 5  
 Statistical Summary of Inorganic Compounds Detected in Soil Samples  
 IR08 PCB Spill  
 Hunters Point Annex  
 Date Range: 1/1/88 - 1/1/91  
 Report Date: Mar 12, 1991

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Test Method (Number of Analyses)/ Analyte Name	Units	Number of Detected Values	Mean Value	Max Value	Min Value
CLP-CVAA ( 89) Mercury	mg/kg	37	0.29	4.00	0.10
CLP-FUAA ( 89) Arsenic	mg/kg	84	3.58	12.90	0.54
Lead	mg/kg	87	15.11	156.00	0.21
Selenium	mg/kg	5	0.61	0.70	0.54
CLP-ICP ( 89)					
Aluminum	mg/kg	89	22588.20	45300.00	4260.00
Antimony	mg/kg	21	8.18	14.80	4.40
Barium	mg/kg	89	156.60	540.00	13.10
Beryllium	mg/kg	83	0.37	0.74	0.07
Cadmium	mg/kg	18	1.33	2.50	0.68
Calcium	mg/kg	89	17026.97	44300.00	690.00
Chromium	mg/kg	89	241.45	1340.00	18.40
Cobalt	mg/kg	89	34.21	114.00	6.30
Copper	mg/kg	89	63.28	151.00	7.50
Iron	mg/kg	89	35992.13	59200.00	13000.00
Magnesium	mg/kg	89	48924.83	218000.00	2260.00
Manganese	mg/kg	89	893.40	2540.00	128.00
Nickel	mg/kg	89	377.04	2310.00	17.90
Potassium	mg/kg	87	1222.97	3000.00	154.00
Silver	mg/kg	19	0.61	0.98	0.27
Sodium	mg/kg	89	850.96	3390.00	91.20
Vanadium	mg/kg	89	77.87	189.00	13.60
Zinc	mg/kg	89	79.46	275.00	24.70
Molybdenum	mg/kg	2	2.25	2.70	1.80
EPA-7196 ( 92) Chromium VI	mg/kg	9	0.25	0.68	0.08

Table 7  
 Statistical Summary of Organic Compounds Detected in Groundwater Samples  
 IR-8 PCB Spill Site  
 Hunters Point Annex  
 Date Range: 1/1/88 - 11/11/91  
 Report Date: Mar 13, 1991

Page 1

Test Method (Number of Analyses)/ Analyte Name	Units	Number of Detected Values	Mean Value	Max Value	Min Value
CLP-VOC ( 7 )					
Methylene chloride	ug/l	7	8.63	40.00	1.40
Acetone	ug/l	1	4.60	4.60	4.60
Toluene	ug/l	1	3.30	3.30	3.30
Ethyl benzene	ug/l	1	1.20	1.20	1.20
Xylenes	ug/l	2	4.80	8.00	1.60
CLP-SOC ( 7 )					
Bis(2-ethylhexyl)phthalate	ug/l	2	6.60	6.80	6.40

Table 8  
 Statistical Summary of Inorganic Compounds Detected in Groundwater Samples  
 IR-8 PCB Spill Site  
 Hunters Point Annex  
 Date Range: 1/1/88 - 11/11/91  
 Report Date: Mar 15, 1991

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Test Method (Number of Analyses)/ Analyte Name		Units	Number of Detected Values	Mean Value	Max Value	Min Value
CLP-CVAA	( 13)					
Mercury		ug/l	1	0.80	0.80	0.80
CLP-FUAA	( 13)					
Arsenic		ug/l	6	3.28	4.70	2.30
Lead		ug/l	1	2.30	2.30	2.30
CLP-ICP	( 13)					
Aluminum		ug/l	2	45.75	52.90	38.60
Antimony		ug/l	4	32.80	39.50	19.80
Barium		ug/l	13	159.14	246.00	37.40
Calcium		ug/l	13	206323.08	326000.00	30200.00
Chromium		ug/l	3	3.40	3.70	3.20
Cobalt		ug/l	1	10.40	10.40	10.40
Copper		ug/l	8	25.24	54.20	6.90
Iron		ug/l	13	329.97	1230.00	15.30
Magnesium		ug/l	13	573538.46	770000.00	101000.00
Manganese		ug/l	13	1235.08	2040.00	336.00
Nickel		ug/l	8	31.00	45.20	22.80
Potassium		ug/l	13	134423.08	210000.00	40800.00
Silver		ug/l	6	7.88	9.10	3.80
Sodium		ug/l	13	4381538.46	5930000.00	1020000.00
Vanadium		ug/l	11	24.80	49.60	2.70
Zinc		ug/l	12	11.76	26.40	2.10
EPA-300.0	( 13)					
Sulfate		mg/l	13	927.28	1550.00	58.60
Chloride		mg/l	13	8346.92	10800.00	1420.00
EPA-160.1	( 13)					
Total Dissolved Solids		mg/l	13	15050.00	20100.00	2360.00

**Table \_.\_ Well Construction Details for IR09**

Well Number	Total Depth (feet)	Top of Casing Elevation (feet AMSL[1])	Screened Interval (feet BGS[2])	Sand Pack (feet BGS)	Seal (feet BGS)	Unit Screened
IR09MW31A	13.0	8.41	7.0 - 12.0	5.0 - 12.0	3.5 - 5.0	Qaf[3]
IR09MW35A	20.0	8.69	8.0 - 19.0	5.2 - 20.0	4.0 - 5.2	Qaf/Quus[4]
IR09MW36A	22.0	8.88	11.0 - 21.0	9.0 - 21.0	7.0 - 9.0	Qaf/Quus
IR09MW37A	15.0	9.12	7.5 - 14.0	5.0 - 14.0	3.5 - 5.0	Qaf
IR09MW38A	13.5	9.38	7.5 - 12.5	5.5 - 9.7	4.0 - 5.5	Qaf
IR09PPY1	17.0	8.72	7.0 - 17.0	5.0 - 17.0	3.0 - 5.0	Qaf

[1] AMSL = Above Mean Sea Level (adjusted)

[2] BGS = Below Ground Surface

[3] Qaf = Quaternary Bedrock Fill

[4] Quus = Quaternary Undifferentiated Upper Sand Unit

**Table**  
**Historic Water Levels**  
**Pickling and Plate Yard IR-9**  
**Hunters Point Annex**

Well Number and Date Measured	Time Measured (Military)	Top of Casing Elevation (MSL, <sup>1</sup> Feet)	Depth to Water (Feet Below TOC <sup>2</sup> )	Water-Level Elevation (MSL, Feet)
<b>Well:IR09MW31A</b>				
1/8/91	09:30	8.41	9.26	-0.85
1/17/91	12:45	8.41	9.23	-0.82
4/24/90	11:10	8.41	8.22	0.19
6/19/90	10:29	8.41	8.82	-0.41
7/23/90	15:05	8.41	9.08	-0.67
<b>Well:IR09MW35A</b>				
1/8/91	09:23	8.69	8.97	-0.28
1/17/91	13:01	8.69	8.93	-0.24
4/25/90	10:17	8.69	8.09	0.60
6/19/90	10:25	8.69	8.83	-0.14
7/23/90	15:44	8.69	8.67	0.02
<b>Well:IR09MW36A</b>				
1/8/91	09:14	8.88	9.44	-0.56
1/17/91	12:55	8.88	9.43	-0.55
4/25/90	12:03	8.88	8.36	0.52
6/19/90	10:21	8.88	8.83	0.05
7/23/90	15:32	8.88	9.11	-0.23
<b>Well:IR09MW37A</b>				
1/8/91	09:00	9.12	10.12	-1.00
1/17/91	12:51	9.12	10.11	-0.99
4/25/90	15:21	9.12	8.95	0.17
6/19/90	10:14	9.12	9.68	-0.56
7/23/90	15:23	9.12	9.92	-0.80
<b>Well:IR09MW38A</b>				
1/8/91	09:40	9.38	9.57	-0.19
1/17/91	12:35	9.38	9.53	-0.15
4/24/90	09:35	9.38	8.48	0.90
6/19/90	10:09	9.38	9.03	0.35
7/23/90	15:15	9.38	9.44	-0.06
<b>Well:IR00PPYI</b>				
1/8/91	09:08	8.72	8.70	0.02
1/17/91	13:00	8.72	8.65	0.07
4/24/90	14:00	8.72	7.88	0.84
6/19/90	10:38	8.72	8.12	0.60
7/23/90	15:55	8.72	8.75	-0.03
10/20/89	15:12	8.72	8.73	-0.01

<sup>1</sup> MSL = Mean sea level adjusted to the 1929 standard.

<sup>2</sup> TOC = Top of casing.

Table 29  
 Statistical Summary of Organic Compounds Detected in Groundwater Samples  
 IR-10 Battery and Electroplating  
 Hunters Point Annex  
 Date Range: 1/1/88 - 11/11/91  
 Report Date: Mar 13, 1991

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Test Method (Number of Analyses)/ Analyte Name	Units	Number of Detected Values	Mean Value	Max Value	Min Value
CLP-VOC ( 6)					
Vinyl chloride	ug/l	1	3.00	3.00	3.00
Methylene chloride	ug/l	2	1.00	1.00	1.00
Acetone	ug/l	5	6.60	9.00	4.00
1,2-Dichloroethene (total)	ug/l	2	37.00	66.00	8.00
Methyl ethyl ketone	ug/l	6	11.00	14.00	8.00
Trichloroethene	ug/l	1	31.00	31.00	31.00
EPA-8010 ( 6)					
1,2-Dichloroethene (total)	ug/l	3	24.43	38.00	8.30
Trichloroethene	ug/l	4	5.49	13.00	0.60
CLP-SOC ( 13)					
1,3-Dichlorobenzene	ug/l	2	3.55	4.10	3.00
1,2,4-Trichlorobenzene	ug/l	2	2.30	2.60	2.00
Bis(2-ethylhexyl)phthalate	ug/l	9	42.56	120.00	6.00

Table 11  
 Statistical Summary of Organic Compounds Detected in Soil Samples  
 IR09 Pickling and Plate Yard  
 Hunters Point Annex  
 Date Range: 1/1/88 - 1/1/91  
 Report Date: Mar 12, 1991

Page 1

Test Method (Number of Analyses)/ Analyte Name	Units	Number of Detected Values	Mean Value	Max Value	Min Value
CLP-VOC ( 105)					
Methylene chloride	ug/kg	104	10.72	38.00	1.80
Acetone	ug/kg	89	11.70	62.00	1.00
Carbon disulfide	ug/kg	1	14.00	14.00	14.00
Methyl ethyl ketone	ug/kg	9	16.21	60.00	2.10
Benzene	ug/kg	1	120.00	120.00	120.00
Toluene	ug/kg	44	14.35	150.00	1.10
1,1,2,2-Tetrachloroethane	ug/kg	1	7.40	7.40	7.40
Ethyl benzene	ug/kg	1	1.20	1.20	1.20
Xylenes	ug/kg	2	7.45	13.00	1.90
CLP-SOC ( 105)					
Naphthalene	ug/kg	13	86.92	240.00	37.00
2-Methylnaphthalene	ug/kg	19	139.42	390.00	39.00
Dibenzofuran	ug/kg	4	57.00	74.00	44.00
Fluorene	ug/kg	3	47.33	63.00	39.00
Phenanthrene	ug/kg	19	100.95	320.00	40.00
Di-n-butylphthalate	ug/kg	5	61.80	81.00	40.00
Fluoranthene	ug/kg	6	60.67	79.00	40.00
Pyrene	ug/kg	7	64.57	89.00	38.00
Butylbenzylphthalate	ug/kg	1	43.00	43.00	43.00
Benzo(a)anthracene	ug/kg	3	64.00	110.00	36.00
Chrysene	ug/kg	11	103.45	490.00	37.00
Bis(2-ethylhexyl)phthalate	ug/kg	98	223.02	2700.00	40.00
Benzo(b)fluoranthene	ug/kg	5	43.80	50.00	39.00
Benzo(k)fluoranthene	ug/kg	1	49.00	49.00	49.00
Benzo(a)pyrene	ug/kg	2	186.00	300.00	72.00
CLP-PEST/PCB ( 69)					
delta-BHC	ug/kg	2	4.70	5.60	3.80
TPH DIESEL ( 105)					
TPH-Diesel	mg/kg	14	63.71	530.00	7.90

**Table 12**  
**Statistical Summary of Inorganic Compounds Detected in Soil Samples**  
**IRO9 Pickling and Plate Yard**  
**Hunters Point Annex**  
**Date Range: 1/1/88 - 1/1/91**  
**Report Date: Mar 12, 1991**

Page 1

Test Method (Number of Analyses) / Analyte Name	Units	Number of Detected Values	Mean Value	Max Value	Min Value
CLP-CVAA ( 139)	mg/kg	47	0.17	0.30	0.10
Mercury					
CLP-FUAA ( 139)	mg/kg	126	2.98	14.20	0.34
Arsenic					
Lead	mg/kg	130	24.74	920.00	0.46
Selenium	mg/kg	5	0.55	0.58	0.53
Thallium	mg/kg	8	0.54	0.70	0.36
CLP-ICP ( 139)	mg/kg	139	16913.53	62100.00	1420.00
Aluminum	mg/kg	32	13.81	40.70	4.70
Antimony	mg/kg	139	124.14	548.00	3.50
Barium	mg/kg	96	0.47	1.30	0.07
Beryllium	mg/kg	36	1.34	2.90	0.76
Cadmium	mg/kg	139	8877.96	68300.00	229.00
Calcium	mg/kg	139	469.99	2710.00	8.60
Chromium	mg/kg	139	55.52	383.00	5.50
Cobalt	mg/kg	139	39.09	133.00	4.40
Copper	mg/kg	139	38080.36	138000.00	9570.00
Iron	mg/kg	139	77142.45	216000.00	1650.00
Magnesium	mg/kg	139	990.95	3520.00	90.10
Manganese	mg/kg	138	934.35	6340.00	12.60
Nickel	mg/kg	126	984.33	2850.00	93.20
Potassium	mg/kg	20	0.97	1.70	0.44
Silver	mg/kg	139	367.75	2150.00	53.20
Sodium	mg/kg	139	60.49	205.00	18.20
Vanadium	mg/kg	139	55.18	148.00	13.20
Zinc	mg/kg	19	0.26	1.40	0.06
EPA-7196 ( 121)	mg/kg	127	7.71	9.30	4.70
Chromium VI					
EPA-9045 ( 127)	ph				
pH					

Table 15  
 Statistical Summary of Inorganic Compounds Detected in Groundwater Samples  
 IR-9 Pickling and Plate Yard  
 Hunters Point Annex  
 Date Range: 1/1/88 - 11/11/91  
 Report Date: Mar 18, 1991

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Test Method (Number of Analyses)/ Analyte Name		Units	Number of Detected Values	Mean Value	Max Value	Min Value
CLP-CVAA	( 15)					
Mercury		ug/l	1	0.20	0.20	0.20
CLP-FUAA	( 15)					
Arsenic		ug/l	10	4.43	6.30	2.50
Lead		ug/l	2	1.85	1.90	1.80
Selenium		ug/l	2	2.90	3.00	2.80
CLP-ICP	( 15)					
Barium		ug/l	15	89.09	425.00	33.50
Calcium		ug/l	15	41953.33	98800.00	19400.00
Chromium		ug/l	8	106.43	339.00	3.30
Cobalt		ug/l	1	14.70	14.70	14.70
Copper		ug/l	6	10.63	27.50	3.30
Iron		ug/l	7	85.46	223.00	21.50
Magnesium		ug/l	15	149300.00	337000.00	70000.00
Manganese		ug/l	15	665.55	2330.00	34.90
Nickel		ug/l	12	72.41	130.00	21.50
Potassium		ug/l	15	11900.00	23400.00	3450.00
Sodium		ug/l	15	401500.00	799000.00	89100.00
Vanadium		ug/l	14	13.53	34.60	4.00
Zinc		ug/l	15	9.24	38.70	2.10
CLP-CN	( 15)					
Cyanide		ug/l	3	11.67	12.00	11.00
EPA-7196	( 15)					
Chromium VI		mg/l	6	0.11	0.32	0.05
EPA-3000.0	( 15)					
Sulfate		mg/l	15	197.36	276.00	56.80
Nitrate as N		mg/l	8	9.49	65.00	0.95
Chloride		mg/l	15	834.07	3980.00	113.00
Phosphate as P		mg/l	2	0.25	0.26	0.24
EPA-9045	( 15)					
pH		ph	15	7.35	7.70	6.90
EPA-160.1	( 15)					
Total Dissolved Solids		mg/l	15	2007.20	6640.00	787.00

Table 14  
 Statistical Summary of Organic Compounds Detected in Groundwater Samples  
 IR-9 Pickling and Plate Yard  
 Hunters Point Annex  
 Date Range: 1/1/88 - 11/11/91  
 Report Date: Mar 13, 1991

Page 1

Test Method (Number of Analyses)/ Analyte Name	Units	Number of Detected Values	Mean Value	Max Value	Min Value
CLP-VOC ( 8 )					
Methylene chloride	ug/l	2	1.15	1.30	1.00
Carbon disulfide	ug/l	1	2.00	2.00	2.00
EPA-8020 ( 7 )					
Toluene	ug/l	1	2.30	2.30	2.30
EPA-8310 ( 7 )					
Fluorene	ug/l	5	0.38	0.63	0.23

**Table \_.\_ Well Construction Details for IR06**

Well Number	Total Depth (feet)	Top of Casing Elevation (feet AMSL[1])	Screened Interval (feet BGS[2])	Sand Pack (feet BGS)	Seal (feet BGS)	Lithologic Unit Screened
IR06MW22A	9.5	10.43	4.0 - 9.0	3.0 - 9.0	2.0 - 3.0	Qaf[3]
IR06MW23A	13.0	9.74	5.0 - 13.0	4.0 - 14.0	2.0 - 4.0	Qaf
IR06MW27A	9.5	11.73	2.5 - 9.2	2.0 - 9.5	1.0 - 2.0	Qaf
IR06MW30A	17.5	9.84	7.0 - 17.0	5.0 - 17.5	3.5 - 5.0	Qaf/Quus[4]
IR06MW32A	14.0	10.00	6.5 - 14.0	5.0 - 14.0	4.0 - 5.0	Qaf
IR06MW34A	12.5	10.42	7.0 - 12.0	5.0 - 12.5	4.0 - 5.0	Qaf
IR06MW35A	15.5	9.66	6.0 - 15.0	4.0 - 15.5	3.0 - 4.0	Qaf
IR06MW40A	20.5	10.07	7.0 - 20.5	5.0 - 20.5	4.0 - 5.0	Qaf/Quus
IR06MW41A	17.5	9.75	7.0 - 17.0	6.0 - 17.5	4.0 - 6.0	Qaf/Quus
IR06MW42A	14.0	11.92	8.5 - 13.5	6.0 - 14.0	4.0 - 6.0	Qaf

[1] AMSL = Above Mean Sea Level (adjusted)

[2] BGS = Below Ground Surface

[3] Qaf = Quaternary Bedrock Fill

[4] Quus = Quaternary Undifferentiated Upper Sand Unit

**Table**  
**Historic Water Levels**  
**Tank Farm IR-6**  
**Hunters Point Annex**

Well Number and Date Measured	Time Measured (Military)	Top of Casing Elevation (MSL, <sup>1</sup> Feet)	Depth to Water (Feet Below TOC <sup>2</sup> )	Water-Level Elevation (MSL, Feet)
<b>Well:IR06MW22A</b>				
1/8/91	10:20	10.43	7.44	2.99
1/17/91	11:10	10.43	6.21	4.22
6/11/90	15:25	10.43	4.57	5.86
6/19/90	12:14	10.43	4.83	5.60
7/6/90	12:40	10.43	5.29	5.14
7/23/90	12:43	10.43	5.66	4.77
<b>Well:IR06MW23A</b>				
1/8/91	10:30	9.74	6.89	2.85
1/17/91	11:18	9.74	6.76	2.98
6/13/90	09:35	9.74	4.51	5.23
6/19/90	12:25	9.74	4.75	4.99
7/6/90	12:49	9.74	5.25	4.49
7/23/90	13:01	9.74	5.62	4.12
<b>Well:IR06MW27A</b>				
1/8/91	10:50	11.73	9.07	2.66
1/17/91	11:30	11.73	8.48	3.25
6/12/90	15:55	11.73	6.73	5.00
6/19/90	12:37	11.73	6.90	4.83
7/6/90	12:57	11.73	7.33	4.40
7/23/90	13:23	11.73	7.60	4.13
<b>Well:IR06MW30A</b>				
1/8/91	10:40	9.84	7.17	2.67
1/17/91	11:38	9.84	7.07	2.77
6/12/90	10:34	9.84	4.91	4.93
6/19/90	12:19	9.84	5.14	4.70
7/6/90	12:45	9.84	5.62	4.22
7/23/90	12:54	9.84	5.97	3.87
<b>Well:IR06MW32A</b>				
1/8/91	10:45	10.00	7.42	2.58
1/17/91	11:25	10.00	7.28	2.72
6/12/90	13:25	10.00	5.06	4.94
6/19/90	12:31	10.00	5.20	4.80
7/6/90	12:52	10.00	5.71	4.29
7/23/90	13:09	10.00	6.13	3.87
<b>Well:IR06MW34A</b>				
1/8/91	11:20	10.42	10.18	0.24
1/17/91	12:10	10.42	10.02	0.40

**Table**  
**Historic Water Levels**  
**Tank Farm IR-6**  
**Hunters Point Annex**  
**(continued)**

Well Number and Date Measured	Time Measured (Military)	Top of Casing Elevation (MSL, <sup>1</sup> Feet)	Depth to Water (Feet Below TOC <sup>2</sup> )	Water-Level Elevation (MSL, Feet)
6/13/90	11:40	10.42	8.75	1.67
6/19/90	12:59	10.42	8.88	1.54
7/6/90	13:12	10.42	9.21	1.21
7/23/90	13:48	10.42	9.50	0.92
<b>Well:IR06MW35A</b>				
1/8/91	11:00	9.66	7.39	2.27
1/17/91	11:00	9.66	7.30	2.36
6/11/90	10:30	9.66	5.35	4.31
6/19/90	12:07	9.66	5.44	4.22
7/6/90	12:35	9.66	5.74	3.92
7/23/90	12:30	9.66	5.99	3.67
<b>Well:IR06MW40A</b>				
1/8/91	11:10	10.07	9.22	0.85
1/17/91	11:45	10.07	9.08	0.99
6/12/90	15:15	10.07	7.85	2.22
6/19/90	12:44	10.07	7.96	2.11
7/6/90	13:02	10.07	8.27	1.80
7/23/90	14:04	10.07	8.52	1.55
<b>Well:IR06MW41A</b>				
1/8/91	11:15	9.75	8.93	0.82
1/17/91	12:20	9.75	8.80	0.95
6/11/90	11:45	9.75	7.40	2.35
6/19/90	12:52	9.75	7.54	2.21
7/6/90	13:05	9.75	7.90	1.85
7/23/90	13:55	9.75	8.18	1.57
<b>Well:IR06MW42A</b>				
1/8/91	07:35	11.92	11.69	0.23
1/17/91	11:55	11.92	11.54	0.38
6/13/90	10:55	11.92	10.25	1.67
6/19/90	13:07	11.92	10.38	1.54
7/6/90	13:08	11.92	10.69	1.23
7/23/90	13:39	11.92	10.00	1.92

1 MSL = Mean sea level adjusted to the 1929 standard.

2 TOC = Top of casing.

Table 19  
 Statistical Summary of Organic Compounds Detected in Soil Samples  
 IR06 Tank Farm  
 Hunters Point Annex  
 Date Range: 1/1/88 - 1/1/91  
 Report Date: Mar 12, 1991

Page 1

Test Method (Number of Analyses)/ Analyte Name	Units	Number of Detected Values	Mean Value	Max Value	Min Value
CLP-VOC (144)					
Methylene chloride	ug/kg	124	19.97	250.00	1.80
Acetone	ug/kg	131	40.18	290.00	2.10
Carbon disulfide	ug/kg	4	4.53	7.30	3.00
1,2-Dichloroethene (total)	ug/kg	7	21.93	47.00	3.00
Chloroform	ug/kg	11	1.36	2.00	1.00
Methyl ethyl ketone	ug/kg	13	20.46	82.00	2.50
Vinyl acetate	ug/kg	2	8.15	14.00	2.30
Trichloroethene	ug/kg	5	46.08	190.00	1.00
1,1,2-Trichloroethane	ug/kg	1	2.40	2.40	2.40
Benzene	ug/kg	3	53.00	140.00	4.00
Bromoform	ug/kg	1	3.60	3.60	3.60
Tetrachloroethene	ug/kg	7	347.29	2200.00	2.30
Toluene	ug/kg	68	30.99	500.00	1.00
Ethyl benzene	ug/kg	14	61.76	260.00	6.00
Xylenes	ug/kg	20	330.43	4100.00	1.00
EPA-8020 (72)					
Benzene	ug/kg	4	73.50	100.00	32.00
Ethyl benzene	ug/kg	10	87.52	180.00	7.20
Toluene	ug/kg	17	48.99	160.00	7.70
Xylenes	ug/kg	12	954.25	8100.00	34.00
CLP-SOC (143)					
4-Methylphenol	ug/kg	3	182.33	290.00	37.00
2,4-Dimethylphenol	ug/kg	7	2524.43	13000.00	81.00
Benzoic acid	ug/kg	1	140.00	140.00	140.00
Naphthalene	ug/kg	23	3084.78	11000.00	130.00
2-Methylnaphthalene	ug/kg	37	10821.35	46000.00	130.00
Acenaphthylene	ug/kg	2	81.00	110.00	52.00
Acenaphthene	ug/kg	5	1048.00	2400.00	320.00
4-Nitrophenol	ug/kg	1	55.00	55.00	55.00
Dibenzofuran	ug/kg	9	1378.00	3400.00	43.00
Fluorene	ug/kg	23	2600.30	10000.00	37.00
n-Nitrosodiphenylamine	ug/kg	1	800.00	800.00	800.00
Pentachlorophenol	ug/kg	1	90.00	90.00	90.00
Phenanthrene	ug/kg	52	2892.88	19000.00	54.00
Anthracene	ug/kg	5	173.60	620.00	46.00
Di-n-butylphthalate	ug/kg	6	77.17	140.00	42.00
Fluoranthene	ug/kg	16	727.56	2400.00	53.00
Pyrene	ug/kg	35	488.86	1700.00	38.00
Butylbenzylphthalate	ug/kg	4	117.75	180.00	50.00
Benzo(a)anthracene	ug/kg	9	314.11	830.00	87.00
Chrysene	ug/kg	24	323.17	1900.00	41.00
Bis(2-ethylhexyl)phthalate	ug/kg	99	2395.88	30000.00	52.00
Benzo(b)fluoranthene	ug/kg	13	512.77	2500.00	41.00
Benzo(k)fluoranthene	ug/kg	10	629.50	2500.00	95.00
Benzo(a)pyrene	ug/kg	7	327.29	1300.00	91.00
Indeno(1,2,3-cd)pyrene	ug/kg	7	213.00	570.00	74.00
Dibenzo(a,h)anthracene	ug/kg	2	72.00	84.00	60.00
Benzo(ghi)perylene	ug/kg	8	261.75	830.00	41.00
CLP-PEST/PCB (111)					
Aldrin	ug/kg	3	53.33	130.00	12.00
Endosulfan I'	ug/kg	1	56.00	56.00	56.00
4,4'-DDD	ug/kg	2	18.00	19.00	17.00
Aroclor-1260	ug/kg	3	353.33	570.00	180.00
MOD EPA-8080 (33)					
Aroclor-1260	ug/kg	5	31161.40	150000.00	77.00
TPH DIESEL (205)	mg/kg	106	4585.16	26000.00	9.10
TPH-Diesel	mg/kg	141	3048.81	110000.00	58.00
OIL & GREASE (177)					
Oil & Grease	mg/kg				

Table 20  
 Statistical Summary of Inorganic Compounds Detected in Soil Samples  
 IR06 Tank Farm  
 Hunters Point Annex  
 Date Range: 1/1/88 - 1/1/91  
 Report Date: Mar 12, 1991

Page 1

Test Method (Number of Analyses)/ Analyte Name		Units	Number of Detected Values	Mean Value	Max Value	Min Value
CLP-CVAA	( 144)					
Mercury		mg/kg	37	0.22	0.98	0.10
CLP-FUAA	( 144)					
Arsenic		mg/kg	141	2.95	56.60	0.31
Lead		mg/kg	143	146.83	2580.00	0.45
Selenium		mg/kg	4	1.30	3.30	0.57
Thallium		mg/kg	11	0.48	0.79	0.38
CLP-ICP	( 179)					
Aluminum		mg/kg	144	13864.31	36400.00	2610.00
Antimony		mg/kg	22	11.85	28.90	4.80
Barium		mg/kg	144	129.05	834.00	8.90
Beryllium		mg/kg	130	0.45	1.20	0.09
Cadmium		mg/kg	12	1.54	2.80	0.92
Calcium		mg/kg	144	7640.13	121000.00	343.00
Chromium		mg/kg	144	337.45	1910.00	40.00
Cobalt		mg/kg	144	43.63	208.00	7.90
Copper		mg/kg	144	35.70	140.00	5.80
Iron		mg/kg	144	31896.88	77000.00	6560.00
Magnesium		mg/kg	144	44858.96	251000.00	3510.00
Manganese		mg/kg	144	783.08	4640.00	169.00
Nickel		mg/kg	144	654.22	3390.00	21.70
Potassium		mg/kg	130	964.76	5660.00	99.60
Silver		mg/kg	27	0.88	1.50	0.27
Sodium		mg/kg	140	485.96	2240.00	29.20
Vanadium		mg/kg	144	52.10	102.00	7.70
Zinc		mg/kg	144	80.71	597.00	16.70
Molybdenum		mg/kg	1	2.02	2.02	2.02
EPA-7196	( 142)					
Chromium VI		mg/kg	6	0.11	0.17	0.08
EPA-9045	( 119)	ph	119	7.78	9.29	4.90
PH						

Table 27  
 Statistical Summary of Organic Compounds Detected in Groundwater Samples  
 IR-6 Tank Farm  
 Hunters Point Annex  
 Date Range: 1/1/88 - 11/11/91  
 Report Date: Mar 13, 1991

Page 1

Test Method (Number of Analyses)/ Analyte Name	Units	Number of Detected Values	Mean Value	Max Value	Min Value
CLP-VOC ( 25)					
Vinyl chloride	ug/l	3	21.33	28.00	12.00
Methylene chloride	ug/l	8	3.50	8.30	1.40
Acetone	ug/l	7	7.54	21.00	1.60
1,2-Dichloroethene (total)	ug/l	9	12.52	29.00	1.30
Trichloroethene	ug/l	6	2.67	4.50	1.40
Benzene	ug/l	9	15.66	55.00	2.70
2-Hexanone	ug/l	1	9.60	9.60	9.60
Tetrachloroethene	ug/l	2	1.30	1.60	1.00
Toluene	ug/l	3	7.33	12.00	3.60
Ethyl benzene	ug/l	4	8.82	14.00	1.10
Styrene	ug/l	1	1.20	1.20	1.20
Xylenes	ug/l	4	32.75	56.00	19.00
CLP-SOC ( 25)					
1,4-Dichlorobenzene	ug/l	1	5.00	5.00	5.00
1,2-Dichlorobenzene	ug/l	2	10.45	18.00	2.90
Benzoic acid	ug/l	1	5.40	5.40	5.40
Naphthalene	ug/l	2	750.00	810.00	690.00
2-Methylnaphthalene	ug/l	1	72.00	72.00	72.00
Acenaphthene	ug/l	13	40.02	170.00	5.30
Dibenzofuran	ug/l	10	29.75	140.00	3.70
Diethyl phthalate	ug/l	1	6.20	6.20	6.20
Fluorene	ug/l	10	29.00	130.00	3.90
Phenanthrone	ug/l	8	34.24	160.00	4.50
Anthracene	ug/l	3	11.37	21.00	2.10
Fluoranthene	ug/l	7	11.13	36.00	3.10
Pyrene	ug/l	7	6.30	16.00	2.10
Butylbenzylphthalate	ug/l	7	6.79	10.00	3.60
Bis(2-ethylhexyl)phthalate	ug/l	15	5.33	14.00	2.20
Di-n-octylphthalate	ug/l	1	18.00	18.00	18.00
TPH DIESEL ( 24)					
TPH-Diesel	mg/l	2	3.85	4.20	3.50
TPH GAS ( 13)					
TPH-Gasoline	mg/l	2	0.65	0.65	0.64
OIL & GREASE ( 25)					
Oil & Grease	mg/l	6	1.92	6.00	0.25

Table 28  
 Statistical Summary of Inorganic Compounds Detected in Groundwater Samples  
 IR-6 Tank Farm  
 Hunters Point Annex  
 Date Range: 1/1/88 - 11/11/91  
 Report Date: Mar 18, 1991

Page 1

Test Method (Number of Analyses)/ Analyte Name		Units	Number of Detected Values	Mean Value	Max Value	Min Value
CLP-FUAA	( 25)					
Arsenic		ug/l	19	4.35	10.50	2.00
Lead		ug/l	1	2.20	2.20	2.20
Selenium		ug/l	2	2.35	2.40	2.30
CLP-ICP	( 25)					
Aluminum		ug/l	1	37.50	37.50	37.50
Antimony		ug/l	1	23.60	23.60	23.60
Barium		ug/l	25	250.29	758.00	38.20
Beryllium		ug/l	5	0.41	0.56	0.37
Cadmium		ug/l	1	4.00	4.00	4.00
Calcium		ug/l	25	62896.00	167000.00	10100.00
Chromium		ug/l	11	3.14	5.40	1.70
Cobalt		ug/l	3	8.80	11.00	7.20
Copper		ug/l	8	14.58	58.20	1.90
Iron		ug/l	20	1291.43	8970.00	27.10
Magnesium		ug/l	25	217260.00	825000.00	39200.00
Manganese		ug/l	25	2047.52	6190.00	123.00
Nickel		ug/l	13	32.29	53.20	21.10
Potassium		ug/l	25	16067.60	39200.00	1680.00
Silver		ug/l	6	4.33	5.60	1.60
Sodium		ug/l	25	445704.00	1310000.00	43000.00
Vanadium		ug/l	25	15.43	56.70	4.80
Zinc		ug/l	24	14.00	48.60	4.00
EPA-300.0	( 24)					
Sulfate		mg/l	21	154.41	1670.00	3.10
Nitrate as N		mg/l	5	0.42	1.10	0.22
Chloride		mg/l	24	918.52	3130.00	76.50
Phosphate as P		mg/l	2	0.53	0.73	0.33
EPA-350.1	( 23)					
Ammonia		mg/l	22	0.85	2.00	0.12
EPA-9045	( 13)					
pH		ph	13	7.35	8.00	6.60
EPA-160.1	( 23)					
Total Dissolved Solids		mg/l	23	2248.09	5920.00	433.00

**Table .. Well Construction Details for IR10**

Well Number	Total Depth (feet)	Top of Casing Elevation (feet AMSL[1])	Screened Interval (feet BGS[2])	Sand Pack (feet BGS)	Seal (feet BGS)	Lithologic Unit Screened
IR10MW12A	18.5	9.05	3.0 - 18.0	2.0 - 19.0	1.0 - 2.0	Qaf[3]
IR10MW13A2	40.5	9.97	25.0 - 40.0	23.0 - 40.0	21.5 - 23.0	Qaf
IR10MW13A1	20.0	9.90	5.0 - 20.0	3.0 - 20.5	2.0 - 3.0	Qaf
IR10MW14A	20.0	10.20	5.0 - 20.0	3.0 - 20.5	2.0 - 3.0	Qaf
IR10MW15A	18.0	9.62	5.0 - 18.0	3.0 - 18.0	1.5 - 3.0	Qaf

[1] AMSL = Above Mean Sea Level (adjusted)

[2] BGS = Below Ground Surface

[3] Qaf = Quaternary Bedrock Fill

**Table**  
**Historic Water Levels**  
**Battery and Electroplating Shop (Building 123) IR-10**  
**Hunters Point Annex**

Well Number and Date Measured	Time Measured (Military)	Top of Casing Elevation (MSL, <sup>1</sup> Feet)	Depth to Water (Feet Below TOC <sup>2</sup> )	Water-Level Elevation (MSL, Feet)
<b>Well:IR10MW12A</b>				
1/8/91	11:06	9.05	6.52	2.53
1/17/91	10:20	9.05	6.51	2.54
3/9/89	09:27	9.05	5.33	3.72
3/13/89	08:00	9.05	5.30	3.75
6/19/90	11:34	9.05	6.06	2.99
8/21/90	11:45	9.05	6.48	2.57
10/20/89	15:12	9.05	6.22	2.83
<b>Well:IR10MW13A1</b>				
1/8/91	11:11	9.97	7.90	2.07
1/17/91	10:30	9.97	7.90	2.07
3/9/89	13:55	9.97	6.49	3.48
3/13/89	08:00	9.97	6.64	3.33
6/19/90	11:38	9.97	7.57	2.40
8/22/90	10:35	9.97	7.87	2.10
10/20/89	15:23	9.97	7.54	2.43
<b>Well:IR10MW13A2</b>				
1/8/91	11:14	9.90	7.80	2.10
1/17/91	10:35	9.90	7.85	2.05
3/9/89	12:26	9.90	6.39	3.51
3/13/89	13:00	9.90	6.55	3.35
6/19/90	11:40	9.90	7.47	2.43
8/22/90	09:13	9.90	7.77	2.13
10/20/89	15:18	9.90	7.51	2.39
<b>Well:IR10MW14A</b>				
1/8/91	11:20	10.20	8.20	2.00
1/17/91	10:44	10.20	8.24	1.96
3/9/89	15:05	10.20	7.10	3.10
3/13/89	15:00	10.20	7.18	3.02
6/19/90	11:47	10.20	7.82	2.38
8/22/90	12:59	10.20	8.01	2.19
10/20/89	15:27	10.20	7.63	2.57

**Table**  
**Historic Water Levels**  
**Battery and Electroplating Shop (Building 123) IR-10**  
**Hunters Point Annex**  
**(continued)**

Well Number and Date Measured	Time Measured (Military)	Top of Casing Elevation (MSL, <sup>1</sup> Feet)	Depth to Water (Feet Below TOC <sup>2</sup> )	Water-Level Elevation (MSL, Feet)
<b>Well:IR10MW15A</b>				
1/8/91	11:26	9.62	7.05	2.57
1/17/91	10:52	9.62	7.05	2.57
3/9/89	16:40	9.62	5.42	4.20
3/13/89	16:00	9.62	7.01	2.61
6/19/90	11:52	9.62	5.84	3.78
8/22/90	14:04	9.62	6.29	3.33
10/20/89	15:33	9.62	6.56	3.06

1 MSL = Mean sea level adjusted to the 1929 standard.

2 TOC = Top of casing.

Table 21  
 Statistical Summary of Organic Compounds Detected in Soil Samples  
 IRI10 Battery and Electroplating Shop  
 Hunters Point Annex  
 Date Range: 1/1/88 - 1/1/91  
 Report Date: Mar 12, 1991

Page 1

Test Method (Number of Analyses) / Analyte Name	Units	Number of Detected Values	Mean Value	Max Value	Min Value
CLP-VOC ( 70)					
Methylene chloride	ug/kg	67	80.16	380.00	10.00
Acetone	ug/kg	67	65.51	250.00	3.00
1,1-Dichloroethene	ug/kg	4	3.50	7.00	1.00
1,2-Dichloroethene (total)	ug/kg	5	9.00	16.00	1.00
Chloroform	ug/kg	3	2.33	3.00	2.00
Methyl ethyl ketone	ug/kg	63	31.54	260.00	13.00
Trichloroethene	ug/kg	25	214.36	2200.00	1.00
Benzene	ug/kg	3	12.67	23.00	3.00
Tetrachloroethene	ug/kg	1	4.00	4.00	4.00
Toluene	ug/kg	56	10.82	66.00	1.00
Ethyl benzene	ug/kg	2	6.00	7.00	5.00
Styrene	ug/kg	1	11.00	11.00	11.00
Xylenes	ug/kg	2	6.50	10.00	3.00
CLP-SOC ( 70)					
1,3-Dichlorobenzene	ug/kg	1	85.00	85.00	85.00
Naphthalene	ug/kg	3	217.00	380.00	51.00
2-Methylnaphthalene	ug/kg	4	325.75	750.00	50.00
Acenaphthene	ug/kg	1	40.00	40.00	40.00
Dibenzofuran	ug/kg	5	64.60	80.00	40.00
Fluorene	ug/kg	4	76.00	180.00	39.00
Pentachlorophenol	ug/kg	1	42.00	42.00	42.00
Phenanthrone	ug/kg	11	171.91	1000.00	38.00
Di-n-butylphthalate	ug/kg	4	52.25	65.00	42.00
Fluoranthene	ug/kg	4	191.25	340.00	39.00
Pyrene	ug/kg	4	202.00	440.00	45.00
Benzo(a)anthracene	ug/kg	3	166.33	400.00	48.00
Chrysene	ug/kg	6	195.50	570.00	49.00
Bis(2-ethylhexyl)phthalate	ug/kg	28	112.86	440.00	36.00
Benzo(b)fluoranthene	ug/kg	4	186.25	570.00	54.00
Benzo(k)fluoranthene	ug/kg	2	229.00	420.00	38.00
Benzo(a)pyrene	ug/kg	3	118.33	270.00	39.00
Indeno(1,2,3-cd)pyrene	ug/kg	1	210.00	210.00	210.00
Dibenzo(a,h)anthracene	ug/kg	1	75.00	75.00	75.00
Benzo(ghi)perylene	ug/kg	1	180.00	180.00	180.00
TPH DIESEL ( 70)					
TPH-Diesel	mg/kg	33	50.82	670.00	10.00
TPH GAS ( 70)					
TPH-Gasoline	mg/kg	4	16.75	25.00	10.00
OIL & GREASE ( 69)					
Oil & Grease	mg/kg	10	1656.00	7900.00	270.00

Table 22  
 Statistical Summary of Inorganic Compounds Detected in Soil Samples  
 IRI0 Battery and Electroplating Shop  
 Hunters Point Annex  
 Date Range: 1/1/88 - 1/1/91  
 Report Date: Mar 12, 1991

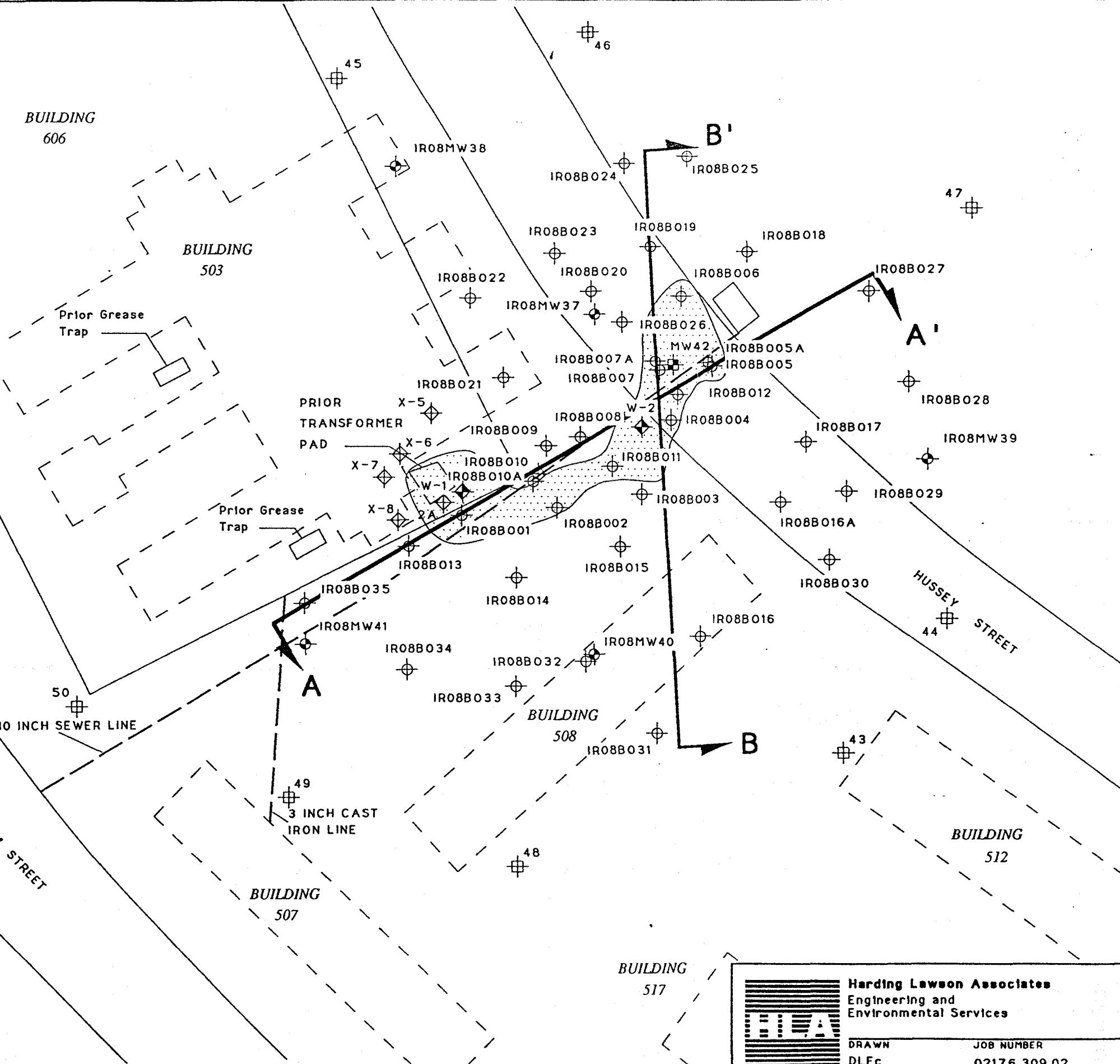
Page 1

Test Method (Number of Analyses)/ Analyte Name		Units	Number of Detected Values	Mean Value	Max Value	Min Value
CLP-CVAA	( 87)					
Mercury		mg/kg	63	0.21	1.40	0.05
CLP-FUAA	( 87)					
Antimony		mg/kg	27	0.65	1.83	0.29
Arsenic		mg/kg	84	4.32	46.70	0.55
Lead		mg/kg	84	17.62	776.87	0.67
Selenium		mg/kg	8	0.37	0.49	0.26
Thallium		mg/kg	4	0.49	0.52	0.47
CLP-ICP	( 137)					
Aluminum		mg/kg	87	15572.15	30973.65	570.10
Barium		mg/kg	84	163.39	1030.00	8.55
Beryllium		mg/kg	16	1.21	2.80	0.43
Calcium		mg/kg	84	11054.06	187633.05	469.95
Chromium		mg/kg	87	356.30	1040.00	4.08
Cobalt		mg/kg	87	59.78	123.00	2.80
Copper		mg/kg	86	36.43	278.00	5.50
Iron		mg/kg	87	32868.97	59702.73	380.00
Magnesium		mg/kg	87	85348.63	204000.00	910.69
Manganese		mg/kg	87	1405.70	41400.00	75.64
Nickel		mg/kg	87	866.59	2442.68	6.08
Potassium		mg/kg	70	598.00	1590.00	68.70
Silver		mg/kg	3	2.13	3.30	1.49
Sodium		mg/kg	83	488.50	2269.29	
Vanadium		mg/kg	87	49.83	126.00	152.72
Zinc		mg/kg	87	56.38	226.21	9.33
EPA-7196	( 86)					
Chromium VI		mg/l	1	0.20	0.20	0.20
EPA-9045	( 85)					
pH		ph	85	8.40	10.90	7.30

Table 30  
 Statistical Summary of Inorganic Compounds Detected in Groundwater Samples  
 IR-10 Battery and Electroplating Shop  
 Hunters Point Annex  
 Date Range: 1/1/88 - 11/11/91  
 Report Date: Mar 13, 1991

Page 1

Test Method (Number of Analyses)/ Analyte Name		Units	Number of Detected Values	Mean Value	Max Value	Min Value
CLP-FUAA	( 12)					
Arsenic		ug/l	1	4.40	4.40	4.40
CLP-ICP	( 12)					
Aluminum		ug/l	6	76.07	328.00	17.70
Antimony		ug/l	1	19.10	19.10	19.10
Barium		ug/l	12	161.76	306.00	40.80
Calcium		ug/l	12	80058.33	162000.00	45600.00
Chromium		ug/l	3	265.67	328.00	141.00
Copper		ug/l	6	27.53	72.70	11.80
Iron		ug/l	8	88.78	128.00	21.80
Magnesium		ug/l	12	258416.67	441000.00	128000.00
Manganese		ug/l	12	466.50	1790.00	136.00
Nickel		ug/l	3	18.23	20.80	14.10
Potassium		ug/l	12	6235.00	17100.00	2340.00
Silver		ug/l	5	15.66	20.70	10.30
Sodium		ug/l	12	453750.00	890000.00	190000.00
Vanadium		ug/l	8	42.88	83.10	2.90
Zinc		ug/l	9	15.87	57.40	2.20
EPA-7196	( 12)					
Chromium VI		ug/l	2	200.08	400.00	0.16
EPA-300.0	( 6)					
Sulfate		mg/l	6	315.00	675.00	179.00
Nitrate as N		mg/l	1	0.32	0.32	0.32
Chloride		mg/l	6	1344.50	2100.00	599.00
EPA-9045	( 6)					
pH		ph	6	8.22	8.40	8.00
EPA-160.1	( 6)					
Total Dissolved Solids		mg/l	6	2740.00	4030.00	1770.00



#### EXPLANATION

ERM West Sampling and Well Locations

W-1 ◆ ERM West Monitoring Well and Well Number

X-7 ◆ ERM West Sampling Location and Sample Number

HLA RI Borings and Well Locations

IR08MW39 ◆ Monitoring Well and Well Number

IR08B005 ◆ Soil Boring and Boring Number

Proposed Contingency Phase Boring and Well Locations

MW42 ◆ Proposed Monitoring Well and Well Number

44 ◆ Proposed Soil Boring and Boring Number

Former Building Location

Approximate location of prior excavation. Location taken from Summary Report Interim Cleanup of PCB Contaminated Soils Near Former Building 503 (ERM West, 1989)

Cross section lines

**DRAFT**

0 25 50  
SCALE IN FEET

Locations of Wells and Soil Borings  
PCB Spill Site, IR-8  
Primary Phase Remedial Investigation  
Hunters Point Annex  
San Francisco, California

PLATE



Harding Lawson Associates  
Engineering and Environmental Services

DRAWN  
DLFc

JOB NUMBER  
02176,309.02

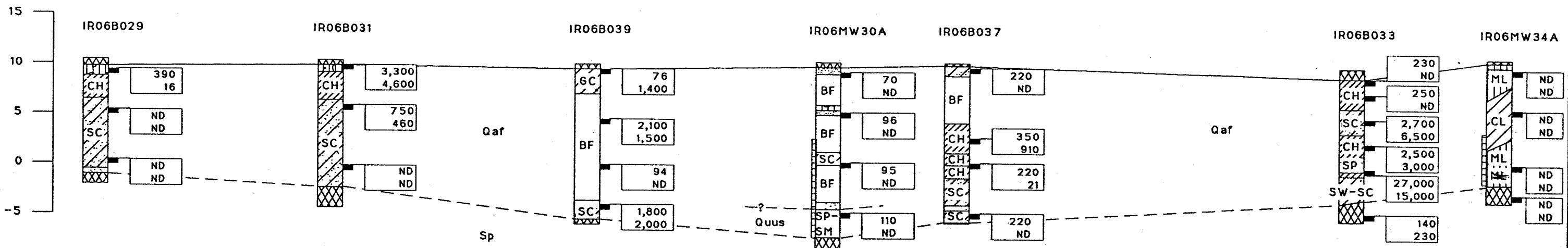
APPROVED

DATE  
2/91

REVISED DATE

A  
West

A'  
East



0      25      50  
feet

Vertical Exaggeration 2.5x

■ Sample Location

270      Oil & Grease (mg/kg)  
2,100      TPH Diesel (mg/kg)

ND      Not Detected



Screened Interval

NOTE: This cross section presents one interpretation based on review of detailed boring logs presented in Appendix B.

Qaf = Bedrock Derived Fill

Quus = Undifferentiated Upper Sand Unit

Sp = Serpentinite Bedrock

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Cross Section A-A' Showing TPH Diesel and  
Total Oil and Grease Concentrations  
Tank Farm / Battery and Electroplating Shop IR6/IR10  
Primary Phase Remedial Investigation  
Hunters Point Annex  
San Francisco, California

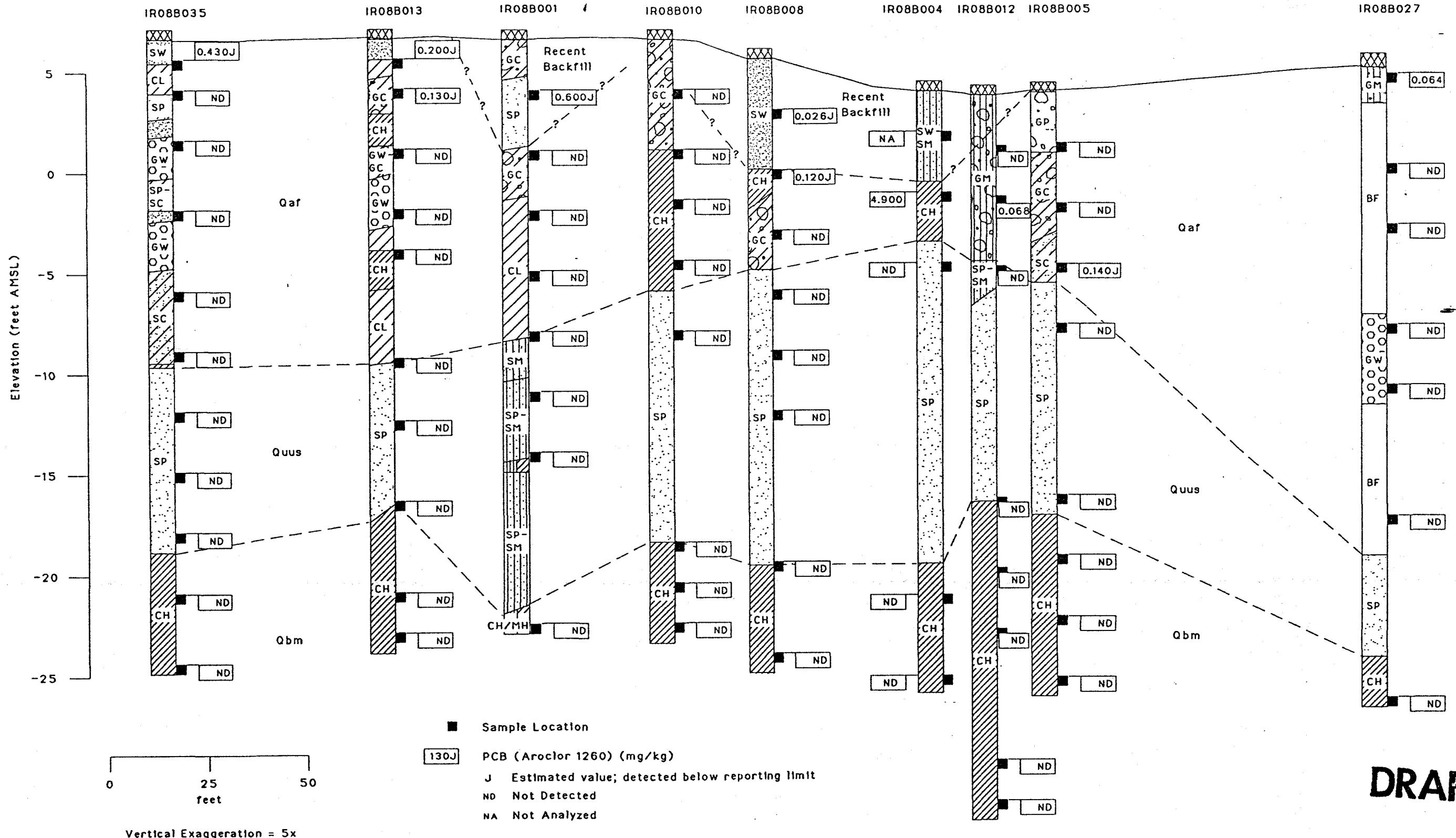
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2/91

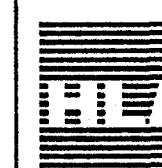
REVISED DATE

A  
Southwest

A'  
Northeast



DRAFT



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Environmental Services

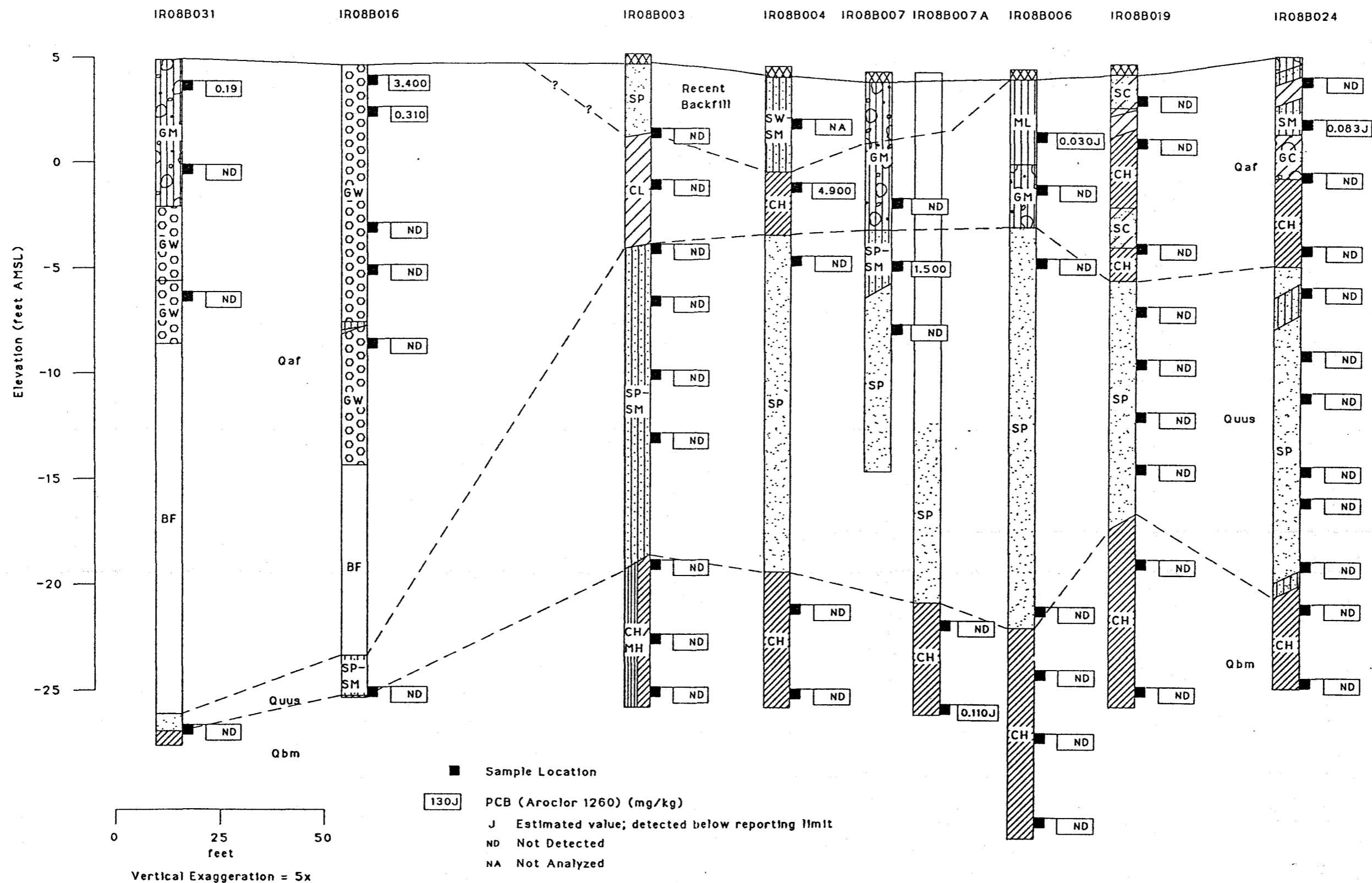
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Cross Section B-B' showing PCB (Aroclor 1260) PLATE  
Concentrations in Soil Samples  
PCB Spill Site IR-8  
Primary Phase Remedial Investigation  
Hunters Point Annex  
San Francisco, California

APPROVED DATE  
REVISED DATE  
12/90

B  
South

B'  
North



DRAFT



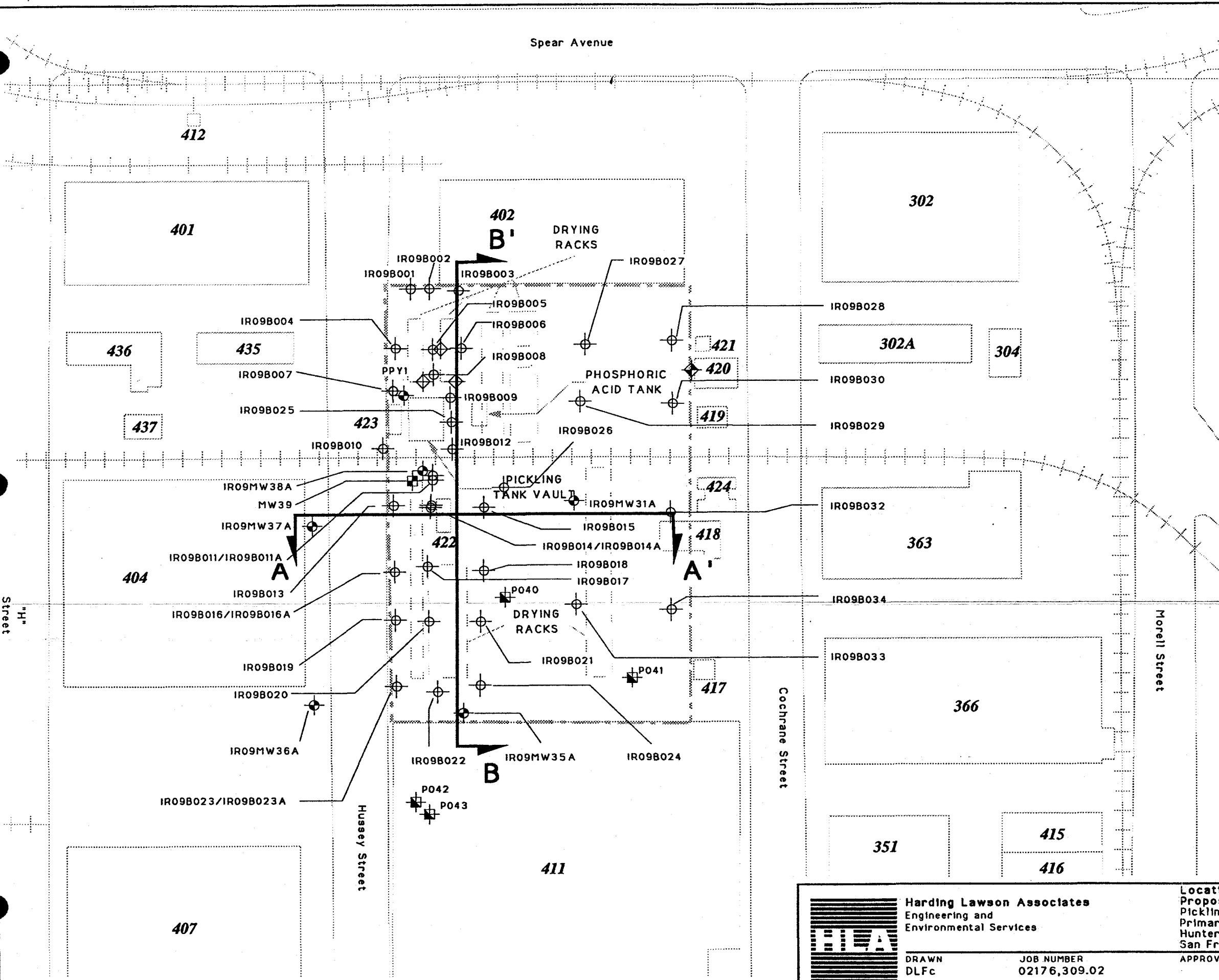
Harding Lawson Associates  
Engineering and  
Environmental Services

DRAWN   JOB NUMBER

Cross Section B-B' showing PCB (Aroclor 1260) PLATE  
Concentrations in Soil Samples  
PCB Spill Site IR-8  
Primary Phase Remedial Investigation  
Hunters Point Annex  
San Francisco, California

APPROVED   DATE   REVISED DATE

Spear Avenue



#### EXPLANATION

##### Removal Action Sampling Locations

◆ Wipe sample location

◆ Residue sampling location

##### HLA RI Well and Boring Locations

IR09MW37A

● Monitoring Well and Well Number

IR09B023

● Soil Boring and Boring Number

##### Proposed Contingency Phase Well and Piezometer Locations

MW34

● Proposed Monitoring Well and Well Number

P040

● Proposed Piezometer and Piezometer Number

Former Drying/Plate Rack Area

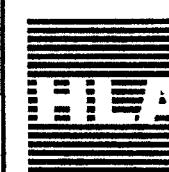
Railroad Tracks

Site Boundary

Cross section lines

Locations of Monitoring Wells, Soil Borings, Proposed Wells, and Cross Sections  
Pickling and Plating Yard IR-9  
Primary Phase Remedial Investigation  
Hunters Point Annex  
San Francisco, California

PLATE



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Engineering and  
Environmental Services

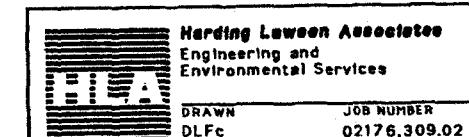
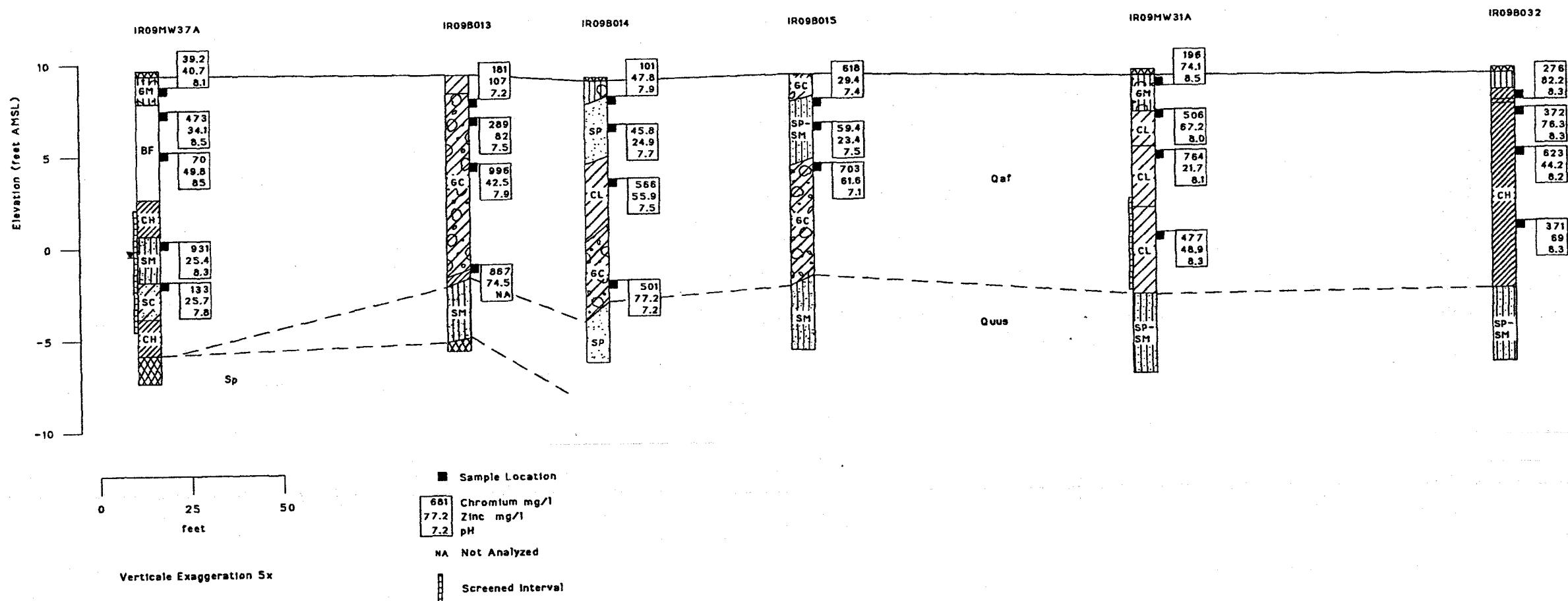
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JOB NUMBER  
02176,309.02

APPROVED

DATE  
2/91  
REVISED DATE

A  
West

A'  
East



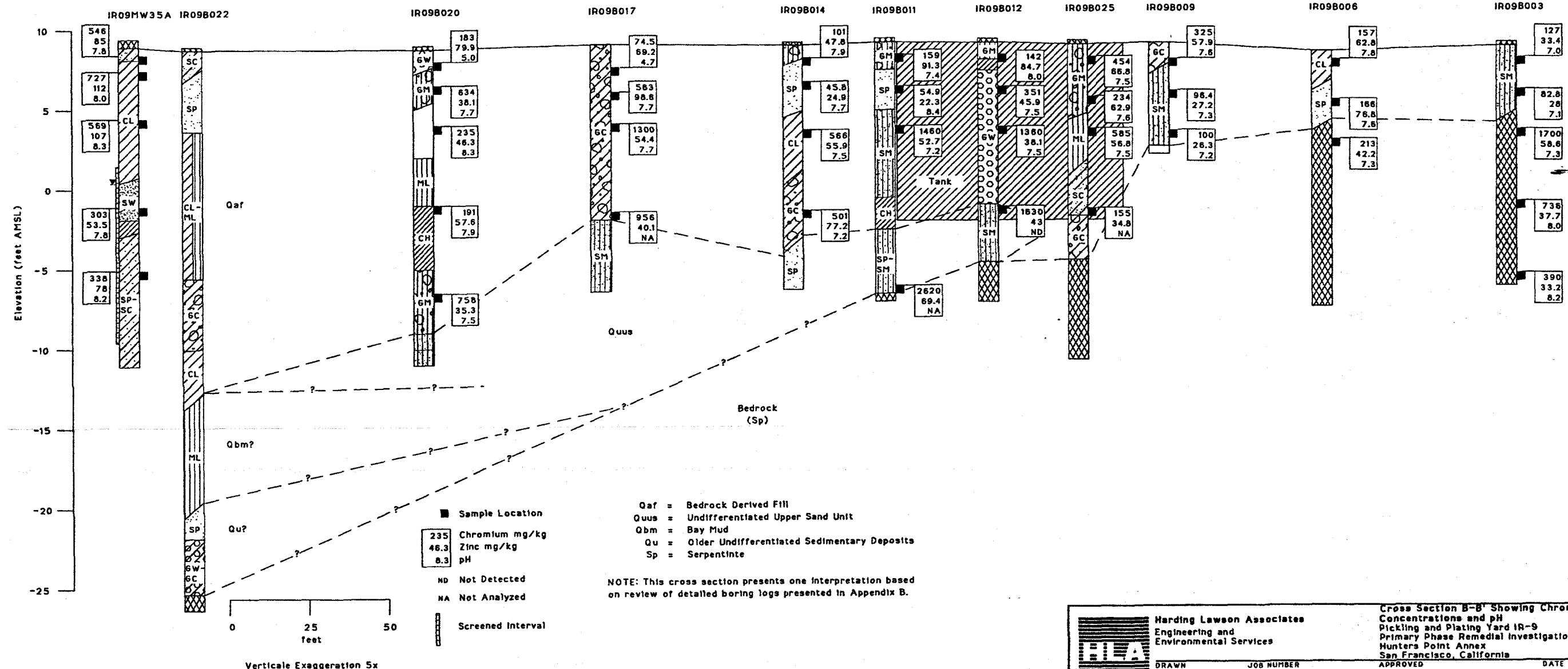
Cross Section A-A' Showing Chromium and Zinc PLATE Concentrations and pH  
Pickling and Plating Yard IR-9  
Primary Phase Remedial Investigation  
Hunters Point Annex  
San Francisco, California

DRAWN APPROVED  
DLFc 02176,309.02 DATE 2/91 REVISED DATE

DRAFT

B  
South

B'  
North



DRAFT